3.0 Affected Environment, Impacts, and Mitigation

3.1 Introduction

An environmental assessment is prepared when it is not known whether an action will have significant (as defined at 40 CFR 1508.27) social, environmental, or economic impacts. If the environmental assessment determines that significant impacts will occur, an environmental impact statement must be prepared for the proposed action to proceed. If it is determined that there will be no significant impacts, then a Finding of No Significant Impact may be prepared, and the project may proceed. It was decided to prepare an environmental assessment for this proposed action due to the unknown magnitude of effects to social and economic conditions during construction, wildlife, and visual resources. In addition, the project will have some effects on land use, air quality, noise, floodplains, wetlands and other waters of the U.S., water resources, cultural resources, hazardous materials, and invasive species. The proposed action would have no, or negligible involvement with agricultural lands, public water systems, energy, relocation, Section 4(f) and Section 6(f), and coastal areas.

This section describes the affected social, environmental, and economic setting; environmental consequences associated with the construction and operational phases; and measures to minimize harm for the areas affected by Alternative 2 – Reconstruction of Existing Alignment (Proposed Project). Also, to appropriately consider all effects, this section discusses, as applicable, the cumulative effects of past, present, and future projects in combination with Alternative 2.

For each resource that may be affected in relation to construction, or footprint activities, an environmental survey limit (ESL) corridor or Action Area is defined as the area of 61 m (200 ft.) on either side of the existing Hyampom Road centerline, for Segments 2, 3, 4, and 5 only. The Action Area is used for Floodplains, Water Resources, Wetlands and other Waters of the U.S., Biology, Hazardous Materials, Cultural Resources, Invasive Species, and Construction.

For each resource evaluated, the affected environment is described for each segment within the Project Vicinity although, when appropriate, a larger context is described. The Project Vicinity is defined as encompassing the alignment of the entire length of Hyampom Road including the towns of Hayfork and Hyampom. The discussion covers data, information, issues, and values that have a bearing on the possible effects and mitigation measures for each resource. The Project Vicinity is also used in describing or evaluating construction and operational effects of the Proposed Project, in particular, Land Use; Social, Economic and Environmental Justice; Air Quality; Noise; Visual Resources; and Biology.

All correspondence with regulatory agencies is documented in Appendix A.

A brief description follows to establish the construction and operation phases, and cumulative effects context for the Proposed Project.

3.1.1 Short Term Construction Activities

The construction phase is a short-term activity; however, the effects may include both short-term and long-term effects, (i.e. a construction effect that is short in duration [three months] may permanently remove a habitat or cultural resource [long-term effect]). All impacts that result in irreversible changes to the environment are considered long term and permanent. Examples would include the loss of wildlife habitat or archaeological resources due to construction in the Action Area. Construction components vary by roadway segment, but construction will generally include: 1) utility repositioning, 2) clearing and grubbing, 3) excavation and embankment or retaining wall construction, 4) subgrade construction, 5) laying aggregate base and paving, and 6) finish work (see Section 3.14 for a more detailed description). The Proposed Project is expected to require 4 to 6 years (construction seasons) to construct. Short-term effects are those that are reversible or cease in a relatively short period, such as the noise arising from construction equipment.

3.1.2 Long Term Roadway Operations

The operation phase is the period following construction. This phase is evaluated for the change in the roadway compared to the existing conditions. In general, this phase is not anticipated to result in long term, irreversible changes to the environment. The Proposed Project is not anticipated to attract higher volumes of traffic. Although roadway speeds may increase slightly, the improved curves and road width will increase safety overall. The Proposed Project will result in a more consistent roadway width and improved roadway conditions.

3.1.3 Past, Present, and Reasonably Foreseeable Actions/Projects, and Respective Impacts for Consideration in Cumulative Impacts

Cumulative effects will be analyzed on those resources affected by the Proposed Project prior to reporting the proposed mitigation.

This portion of the analysis is prepared in accordance with the requirements of NEPA, guidance from the Council on Environmental Quality's (CEQ) *Considering Cumulative Effects Under the National Environmental Policy Act*. The intent is to review the Proposed Project along with other nearby projects, known as "Cumulative actions, which, when viewed with other proposed actions have cumulatively significant impacts, and should therefore be discussed in the same impact statement…" (40 CFR 1508.25 [a] [2]).

3.1.3.1 Cumulative Impacts Analysis Process

The scope of this analysis will focus on those environmental resources that would be affected by the Proposed Project and, when combined with other projects in or near the Project Vicinity, may result in cumulative effects. Those resources of concern are:

- Social and Economic
- Visual
- Wetlands/Water Quality
- Cultural Resources
- Biological Resources
- Construction

The cumulative boundary area addressed in this analysis varies according to the nature and character of each environmental resource. Specific resource boundaries will be described for each resource preceding the cumulative effects discussion and analysis. However, if not otherwise specified, the boundaries for the cumulative impact assessment is defined as the Project Vicinity encompassing all segments of Hyampom Road, from Hayfork to Hyampom, and the communities themselves, as defined in Sections 2.3 and 3.1 of this document.

Identification of actions and projects were collected via consultation with the Trinity County Planning Department staff, STNF, and interviews with long-time residents in the Project Vicinity. Past actions were those that occurred from the point at which the area began to be homesteaded in the early 1850s to the beginning of this study in 2000. The present includes a window of 2001 through 2013, as the anticipated timeline for the Proposed Project Alternative to be completed. The foreseeable future extends 10 years beyond the project construction, but only for projects that can be reasonably forecast. This includes projects that are currently funded or at a minimum an application has been submitted to a local, state, or federal agency.

3.1.3.2 Baseline

Hyampom Road parallels the Hayfork Creek which flows west into the South Fork of the Trinity River. Prior to the 1850s, the area was inhabited by the Hayfork Wintu (also referred to as the Nor-Rel-Muk or Ni-iche, or Normuk or Norelmok or Norelmaq). Apart from the road and a few residential homes, the surrounding landscape is representative of a natural mixed conifer forest with hardwood trees. But the area has been heavily logged and it is expected that the original forest was predominantly mature growth conifer trees, dominated by Douglas fir. The Hayfork and Hyampom Valleys consisted of open grass lands, and possibly natural riparian wetlands.

3.1.3.3 Past Projects

Hayfork has been an important agricultural and mining area since the mid-1850s. By the 1860s, Hayfork had a grist mill that produced nearly all of the flour consumed within Trinity County and a saw mill producing more than 100,000 board feet of lumber per year. In the 1860s, Hyampom was also being developed for agriculture and mining. In the 1950s, in response to heavy logging in the Project Vicinity, two saw mills in Hyampom and three saw mills in Hayfork were operational, and the logging industry subsequently grew in production to surpass the flour industry (USDA 1998).

The Hyampom trail, an important part of a pioneer trail route and pack trail between Humboldt Bay and the Sacramento Valley, passed through the settlement of Hyampom and followed Hayfork Creek. The road to Hyampom was built by 1924 to ease the movement of logs and wood products by truck from Hyampom, but was improved for travel in 1958 to and from Hyampom (Trinity County 2003b). The USFS paid to have the existing concrete Nine-Mile Bridge built in 1948. Hyampom Road was first paved in 1966 by Trinity County.

Since the mid-1990s, logging within the STNF has been greatly reduced, and now mostly consists of thinning and fuels reduction projects. This has changed the economic dynamics for Hayfork and Hyampom. All the major saw mills in Hayfork and Hyampom have shut down. The Hayfork mill has been retrofitted to handle the small-diameter logs produced by thinning and fuels reduction projects, but this operation does not employ nearly as many

people or generate nearly the revenue of the full scale mills of the past. Trinity County continues to maintain Hyampom Road as a County Road. Yearly maintenance typically includes chip sealing, patching, storm damage repair, and snow and rock removal (Trinity County 2003b). Residential growth has been gradual on individual parcels as opposed to subdivision development. There are only four residences that access their property from within the Action Area.

3.1.3.4 Present Projects

Trinity County is proposing an independent road construction project on Segment 1. In compliance with CEQA, Trinity County has completed a Negative Declaration for Segment 1 (KP 0.0 to 5.9 [MP 0.0 to 3.7]). Among the detailed list of improvements, this document evaluated proposed roadway improvements to:

- Realign tight radius curves
- Widen Hyampom Road to 3.3 m (11 ft.) lanes with 0.6m (2 ft.) paved shoulders
- Remove portions of the road from the floodplain of Hayfork Creek

In Hayfork, a small business incubator is being developed. An Elder Care Center is being constructed at the intersection of SR 3 and Hyampom Road. The USFS has approved several small timber harvest activities, consisting of fire restoration, fuels reduction, and pre-commercial thinning projects in the Mid-Hayfork Creek watershed. The USFS is also considering a mine abandonment project that would cap an old placer mining area. The mine area may be used as a waste site for the Proposed Project, but only if the USFS completes the NEPA analysis for the mine project prior to construction of the Proposed Project. See the Construction section (Section 3.14) for more information. The County cleared mature Douglas fir from a large area around the Hayfork Airport. The County and Caltrans both replaced bridges over Hayfork Creek during 2004 and 2005. An application to develop an 8-unit resort for air travelers to Hyampom airport was approved by Trinity County and was recently constructed. This facility is located adjacent to the Hyampom airport. The Merlo Vineyards is developing a winery processing and tasting facility in Hyampom. This development includes renovation of existing industrial property into a winery.

3.1.3.5 Foreseeable Future Projects

As of the time of this study, there are no official applications submitted to local, state or Federal agencies for projects scheduled to begin after 2013 and therefore there are no foreseeable future projects with cumulative effects beyond those near-term projects listed above.

3.2 Land Use and Growth

The objective of this section is to describe the existing and proposed land uses for the Project Vicinity and the surrounding area, and to evaluate the long- or short-term effects associated with the Proposed Project on these land uses. The evaluation includes a discussion of the land use information provided by the USFS and the Trinity County Departments of Transportation and Planning, and the potential growth implications. Supplementary

information was provided by visual site inspections, and reviews of aerial photographs and maps of the Hayfork and Hyampom Valley areas.

3.2.1 Affected Environment

3.2.1.1 Regional Setting

The Proposed Project occurs within Trinity County, between the communities of Hayfork and Hyampom and parallels Hayfork Creek. Neither Hayfork nor Hyampom are incorporated and therefore, the communities are governed by Trinity County ordinances.

The Trinity County area consists of 0.8 million hectares (ha) (2.0 million acres [ac.]) or 8,234 square kilometers (km^2) (3,179 square miles [$mi.^2$]). As of 2000, its population was over 13,000 (U.S. Census 2000). Within Trinity County, the largest communities are Weaverville, Hayfork, and Lewiston. Trinity County is located along the southern edge of the Trinity Alps in part of the Klamath Mountains. The Trinity County area is characterized by parallel mountain ridges with intervening valleys of varying sizes. Most of the County (72 percent) is in federal or state ownership including the Shasta Trinity National Forest, Bureau of Land Management (BLM), Six Rivers National Forest, and the Whiskeytown-Shasta-Trinity National Recreation Area (USDA 1998).

Overall land use can be characterized as accommodating tourism, forestry and lumber production, and rural communities. The region attracts people interested in outdoor interests, such as camping, hiking, fishing, and hunting. Outside of government lands, timber production is the predominant land use in this mountainous region although in recent years (early 1990s), this industry and associated milling activities have significantly declined. The valleys are predominantly used for agriculture and irrigated forage crops, which are harvested for hay. Some of the valley areas are also used for grazing livestock or homesite development. In the more densely populated areas, more intensive land use patterns and smaller parcel sizes exist which are used for residential and commercial uses (retail, professional, and government services).

3.2.1.2 Local Setting

The Proposed Project will occur between, but not actually within, the towns of Hayfork and Hyampom. The town of Hayfork is located in a valley and is bisected by Hayfork Creek. The elevations of Hayfork range from a high of 1,100 m (3,600 ft.) in the east to a low of 690 m (2,250 ft.) in the west, with the Hayfork Valley at approximately 700 m (2,300 ft). Typical of a rural community town, the land uses include small businesses, residential, and agricultural uses. The Hayfork Plan area consists of 10,776 ha (26,628 ac.) or 107.7 km^2 (41.6 $mi.^2$) with an existing population of approximately 2,800 (Trinity County Planning Department 1996). The community of Hyampom is located west of Hayfork and is accessed primarily by Hyampom Road. Hyampom is predominantly a residential community, with one grocery store, a self-serve airport, and other remote businesses, such as vineyards and small lodging accommodations. The community resides on the east side of the South Fork of the Trinity River at the confluence with Hayfork Creek. Presently, Hyampom consists of 230 in population (Saxton 2003).

Apart from seven parcels, four of which are devoted to residential uses along/near Segment 2, the Project Vicinity is situated within the STNF. Also, two mining claims are situated

along Segment 5 of Hyampom Road that are unpatented and therefore still on STNF property and covered by the USDOT easement. Aside from these few private parcels, USDOT easement covers the existing roadway, which extends 20 m (66 ft.) on each side of the centerline. Prescriptive rights currently exist on the private properties along Segment 2.

3.2.1.3 Applicable Land Use Plans and Policies

Land use and development along Hyampom Road are influenced by both Trinity County and the STNF plans. The Trinity County General Plan and associated ordinances determine development on private lands. The National Forest System of lands are managed by the Land and Resources Management Plan of the STNF.

The Trinity County General Plan is made up of several elements. Pertinent elements include the Land Use Element, the Open Space and Conservation Element, and the Circulation Element which were recently updated in 2002. The Land Use Element also includes community plans. These plans contain goals, objectives, and policies. There is a community plan for Hayfork but not for Hyampom. The Regional Transportation Plan (RTP) is developed and maintained by the Trinity County Transportation Commission (TCTC). It was updated on September 20, 2005. The plan is for programming funding for transportation projects, including roads, airports, public transit, trails and bikeways, based on priority of transportation needs.

The *STNF Land and Resource Management Plan* (LMP) outlines goals for the entire forest by dominant management subjects, however, the forest is divided into geographical management areas. The proposed reconstruction of Hyampom Road will occur in Management Area 17, Hayfork Creek, and Management Area 19, Indian Valley/Rattlesnake of the LMP (USDA 1999). Management Area 17 is along the northern boundary of the Hayfork Ranger District and the western boundary is formed by the South Fork Trinity River. A small portion of the Project Vicinity is in Management Area 19, which is located west and southwest of the community of Hayfork. Each of the management areas are further divided into prescriptions to emphasize a management purpose to a particular kind of land, such as timber, recreation, minerals, or wildlife and fisheries habitats. These prescriptions outline standards and guidelines on how to manage the particular forest resources. Both of the management areas have the same prescriptions surrounding Hyampom Road. The Roaded Recreation Management Prescription is a linear prescription following Hyampom Road that emphasizes recreation and travel as high uses. This prescription allows for a highly traveled road, but also directs management to prioritize visual resources. Outside the Roaded Recreation Prescription in Segments 4 and 5, the prescription is an Adaptive Management Area for Commercial Wood Products. Within Management Area 17, the total area of Commercial Wood Products is expected to produce 9 million board feet over a 10-year period, with very low expected loads within Management Area 19. The Hayfork Creek side of Hyampom Road is prescribed as Unroaded Non-motorized Recreation. Typical recreational activities within the area include hiking, cross-country skiing, horseback riding, fishing, hunting, camping, and sight seeing.

Table 8 records the applicable goals, objectives, and/or management guidelines for all pertinent planning documents for the proposed Project Vicinity.

TABLE 8
Land Use Policies Applicable to Hyampom Road

Plan	Land Use Policies and Application to the Hyampom Project Vicinity	Proposed Project Consistent?
Trinity County's General Plan	• Goal: Retain the rural character of Trinity County.	Yes
	• Goal: Encourage adequate housing and residential space to keep pace with moderate population growth.	Yes
Land Use Element Pertaining to Hyampom	• Policy: Growth- New development should be consistent with the valley's character. Due to the area's remoteness, no new growth-limiting measures are thought necessary.	Yes
	• Policy: Services- Maintain the existing low level of services.	Yes
	• Policy: Resources - Encourage the use of the valley's agricultural land and the surrounding timber land for resource production.	Yes
Hayfork Community Plan *- Transportation Goals and Objectives*	• Goal 1: Provide a transportation system which effectively, efficiently, and safely serves the variety of transportation needs of the community.	Yes
	• Objective 1.2: Improve county roads in the Hayfork area and continue the 5-year Capital Improvement Program (CIP) in existence for improving county roads in the Plan Area.	Yes
	• Objective 1.3: Provide access for the deployment of emergency vehicles.	Yes
	• Objective 1.5: Improve the safety of roadways based upon ADT and public safety needs.	Yes
	• Objective 3.1: Develop roadway systems which are compatible with the areas they serve.	Yes
	• Policy b: Sound engineering judgment shall be used in determining road design and construction in order to reduce long-term maintenance costs.	Yes
Trinity County General Plan *- Open Space and Conservation Element*	• Objective: Reserve land for recreational facilities, encourage private recreational development, and other open uses in categories characteristic and beneficial to the residents of Trinity County as well as to meet the tourist needs of the immediate and long-term future.	Yes
	• Objective: Retain the character and natural beauty of Trinity County with the preservation of existing open space and the control of open space.	Yes
	• Objective: Protect the natural resources which are important to Trinity County and preserve areas which are important as commercial natural resources for future generations.	Yes
	• Objective: Reserve land for recreational facilities, encourage private recreational development and other open uses in categories characteristic and beneficial to the present and future residents of the County without damage to the ecology of the area.	Yes
Trinity County General Plan *- Circulation Element*	• Goal 1: Provide for the long-range development of Trinity County's roadway system that is consistent with adopted land use patterns, ensures the safe and efficient movement of the people and goods, minimizes effects on the attractiveness of the community, meets environmental and circulation objectives, and implements funding strategies for construction, improvement, and maintenance of existing and new roadways.	Yes
	• Objective 1.1: Establish consistency and/or linkages between transportation programs and land use plans.	Yes

TABLE 8
Land Use Policies Applicable to Hyampom Road

Plan	Land Use Policies and Application to the Hyampom Project Vicinity	Proposed Project Consistent?
	• Objective 1.2: Determine and, as appropriate, address the probable land use impacts of transportation projects prior to approving or funding the projects.	Yes
	• Policy 1.2.A: Location, design, and development of transportation projects shall be consistent with the adopted land use policies of Trinity County.	Yes
	• Policy 1.2.B: Identify potential effects and/or conflicts between potentially growth-inducing transportation projects and the adopted land use policies of the county.	Yes
	• Policy 1.2.C: Require mitigation for transportation projects with potentially significant effects to existing or planned land uses in Trinity County.	Yes
	• Objective 1.4: Develop road systems which are compatible with the areas they serve.	Yes
	• Policy 1.4.A: Consider motorist safety, emergency vehicle access, roadway use/purpose, and climate/weather conditions when existing roads are improved or new roads are developed.	Yes
	• Policy 1.4.B: Use sound engineering judgment in determining road design and construction in order to reduce long-term maintenance costs.	Yes
	• Objective 1.11: Identify and secure additional funding sources to support transportation.	Yes
	• Objective 1.12: Use available funds for eligible programs that will ensure the most efficient use of existing facilities.	Yes
	• Policy 1.12.A: Give highest priority to maintenance and protection of existing facilities.	Yes
	• Policy 1.13.A: Maintain existing transportation facilities in a manner that supports economic development and tourism.	Yes
	• Policy 1.13B: Assess each project's contribution to the aesthetics of the area in which it is implemented and support those projects that enhance the visitor's experience in the region.	Yes
	• Objective 1.14: Support and promote economic development through the efficient movement of freight and tourist travel to, and through, Trinity County.	Yes
	• Goal 3: Maintain and upgrade the existing transportation system to prevent costly deterioration, to ensure the system efficiency does not decline, to maintain air quality and conserve energy, and to increase mobility and reduce travel time within Trinity County and adjacent regions.	Yes
	• Objective 3.1: Use available funds for programs that ensure the most efficient use of existing facilities.	Yes
	• Policy 3.1.A: Give highest priority to maintenance and protection of existing facilities.	Yes
	• Objective 3.4: Develop a system of high standard collector and arterial roads to reduce travel time and improve traffic safety within the county, as well as connectors with other regions.	Yes
	• Policy 3.4.A: Correct deficiencies in major collector and arterial roads.	Yes
	• Policy 3.4.B: Provide for surfaced, all-weather roads and streets where year-round public service is needed for education, mail, medical, fire protection, law enforcement, and cultural activities.	Yes

TABLE 8
Land Use Policies Applicable to Hyampom Road

Plan	Land Use Policies and Application to the Hyampom Project Vicinity	Proposed Project Consistent?
Trinity County 2005 Regional Transportation Plan	• Goal 0: To provide a safe, reliable, accessible, cost-effective and efficient transportation system consistent with socioeconomic and environmental needs within Trinity County.	Yes
	• Goal 1.1: Maintain and upgrade the existing system of streets, highways and bridges to minimize costly deterioration, to ensure that the efficiency of the system does not decline and to preserve access into communities for residents and emergency service providers.	Yes
	• Objective 1.1.1: Rehabilitate and/or reconstruct existing road and bridge facilities where necessary, and continue to maintain existing facilities.	Yes
	• Policy 1.1.1.B: Correct deficiencies in major collector and arterial roads, using state and federal grant funding, where available.	Yes
	• Objective 1.1.2: Provide reliable all-weather access to all developed communities of the county.	Yes
	• Policy 1.1.2.A: Identify communities with a history of access problems of isolation due to roadway failures and facilitate efforts to eliminate those conditions.	Yes
	• Goal 1.3: Coordinate improvement of transportation facilities with adopted land use plans, and with state and federal programs.	Yes
	• Policy 1.3.1.A: Consider the Trinity County General Plan and/or Community Plans when assessing potential transportation projects.	Yes
	• Policy 1.3.1.B: Determine and, as appropriate, address the probable land use impacts of transportation projects prior to constructing the projects.	Yes
	• Objective 1.3.3.: Coordinate plans, programs and projects for the county, state and federal transportation systems.	Yes
	• Goal 5.1: Support and promote economic development through the efficient movement of freight and tourist travel to, and through Trinity County.	Yes
	• Policy 5.1.1.C: Support federal, state and local policies that enhance facilities involved in the transportation of commodities.	Yes

TABLE 8
Land Use Policies Applicable to Hyampom Road

Plan	Land Use Policies and Application to the Hyampom Project Vicinity	Proposed Project Consistent?
	• Goal 6.1: Promote protection of the environment without sacrificing public safety or placing unnecessary restrictions on street and highway projects.	Yes
	• Policy 6.1.1.A: Consider environmental issues early in the planning and design of transportation facilities.	Yes
	• Policy 6.1.1.B: Minimize environmental impacts, project delays and added costs or procedures for transportation projects through early and continued resource agency consultation and public involvement.	Yes
Shasta-Trinity National Forest Land and Resource Management Plan *- Land Use and Recreation Goals*	• Goal 22: Manage the STNF land base and resources to provide a variety of high quality outdoor recreation experiences. • Goal 24: Encourage use of the Forests by the disadvantaged, physically challenged, and minorities. • Goal 8: Manage the Forest's transportation system to facilitate resource management activities, protect wildlife, meet water quality objectives, and provide recreational access. • Guideline 12.i (1): Establish transportation and utility corridors as needed to accommodate existing and planned facilities. Future rights-of-way will be confined to existing corridors unless there are overriding economic or environmental concerns. • Goal: Continue to improve access to rivers, streams, and lakes for water-oriented recreation activities consistent with the Aquatic Conservation Strategy. Continue to provide access to hunting, fishing, and wildlife viewing areas. • Goal: Mitigate the physical effects of increased, dispersed recreation use. Rehabilitation efforts should respond to resource damage to soils, water, and vegetation.	Yes Yes Yes Yes Yes Yes
Shasta-Trinity National Forest Land and Resource Management Plan *- Management Area 17*	• Goal: Emphasize recreational and scenic values along the South Fork Trinity River and Hayfork Creek Canyon Areas.	Yes

TABLE 8
Land Use Policies Applicable to Hyampom Road

Plan	Land Use Policies and Application to the Hyampom Project Vicinity	Proposed Project Consistent?
Shasta-Trinity National Forest Land and Resource Management Plan *- Management Area 19*	• There are no supplemental land and management plan directions for land use and recreation within Management Area 19.	
Roaded Recreation Management Area - Prescriptive Standards and Guidelines	• Roads and trails should be located, designed, constructed, and maintained so that they are compatible with Roaded Natural Recreation Opportunity Spectrum (ROS) activities. These activities include hiking, auto touring, wildlife viewing, OHV use, cross-country skiing, snowmobiling, and horseback riding.	Yes
	• Manage to meet adopted Visual Quality Objectives (VQO) of retention, partial retention, or modification as indicated on the adopted VQO map.	Yes

3.2.2 Environmental Consequences

This assessment evaluates whether the Proposed Project would conflict with any applicable land use plan, policy, or habitat conservation plan, transportation plan, or regulation of an agency with jurisdiction over the Proposed Project, Action Area or Project Vicinity, adopted for the purpose of avoiding or mitigating an environmental effect. This assessment also evaluates whether the Proposed Project would affect an established community, induce substantial population growth, displace substantial numbers of people within an established community, or adversely affect recreational facilities within the Project Vicinity.

3.2.2.1 Alternative 1 – No Action

There would be minimal effects to land use or recreational facilities if Alternative 1 – No Action was chosen as the preferred alternative. However, over time, the No Action alternative would contribute to a decrease in overall mobility and accessibility to the town of Hyampom and forest recreation areas due to continued erosion and deterioration of Hyampom Road. Mobility would also decrease for emergency vehicle access and delivery services. This alternative would also increase rather than decrease maintenance costs of Hyampom Road due to continued erosion and narrowing of the highway as a result of deferred reconstruction. Also, slope instability could result in full-width road failures, thus severing vehicular access through to Hyampom. Another effect would be the continued sedimentation of Hayfork Creek and the South Fork of Trinity River due to the lack of erosion control along the edges of the highway. These effects are incompatible with the goals of the Trinity County General Plan Circulation Element, Hayfork Community Plan and applicable policies of the STNF LMP. The No Action Alternative would also fail to implement policies of the RTP.

The No Action Alternative would not induce growth in Hyampom, either directly or indirectly. The condition of the road currently discourages some people from relocating their residence or business to Hyampom. Continued deterioration of the road could lead to a decline in businesses and residents in Hyampom.

3.2.2.2 Alternative 2 – Reconstruction of Existing Alignment

Construction Phase

The Proposed Project is not anticipated to induce any changes in land use patterns or affect any established populations or communities within the Project Vicinity due to remoteness of the area and lack of economic base to support growth. It will not displace housing or businesses, nor alter the general travel route between Hayfork and Hyampom. The Proposed Project will not provide new access to currently inaccessible areas.

The Proposed Project will alter the appearance of Hyampom Road and the surrounding environment as construction and heavy equipment staging areas are established and major earthmoving activities will occur in all four segments. Particularly in Segments 4 and 5, construction will require cutting into the hillside and building new road embankments, which will result in the removal of trees and other vegetation along the roadway. These activities cause temporary and often long-term visual effects on the Hyampom Road setting. These effects are more fully discussed under the Biology and Visual sections of this EA (Sections 3.9 and 3.12, respectively). Although construction will alter the road, the road (and

area) will still meet the Roaded Recreation Prescription. The Proposed Project will be required to adhere to the LMP policies as a permitted activity.

The Proposed Project will also temporarily interfere with access between the communities of Hyampom and Hayfork, as well as access to recreational facilities within the STNF. During the construction season (between May 1 to October 31), access between Hayfork and Hyampom will be more limited, especially to residents, school buses, delivery and mail services, and emergency vehicles. Access will also be more limited during the summer months to tourists, recreational users, and patrons of commercial establishments located along Hyampom Road and within the town of Hyampom. (For a full discussion of these effects, refer to the Construction section [Section 3.14] of this EA). The Proposed Project will require daily and complete road closures up to 4 hours in duration. There may be some night closures, and any such closures will be well advertised in advance. The construction will open for school bus and postal service, and typical commuting hours. While exact times would be negotiated with critical transportation movement, a likely scenario would be providing access through the construction project at 8 a.m., lunch (12 to 1 p.m.), 3:30 p.m., and then again at 5 p.m. Other than these daily openings for road access, the road would be completely closed at other times of day, but in general open all night, subject to some night closures. Coordination of construction schedules with local and regional traffic as well as emergency vehicles will be required as part of construction plans and specifications. Occasional work may be necessary on Saturdays, but no construction is expected on Sundays or holidays, when most cultural events occur in Hayfork and Hyampom. Night is defined as 30 minutes after sunset until 30 minutes before sunrise.

Operation Phase

Similar to the construction phase, the operation phase of the Proposed Project is not anticipated to induce any changes in land use patterns or affect any established populations or communities within the Project Vicinity. The Proposed Project will not displace housing or businesses, add new access to currently inaccessible areas, nor alter the general travel route between Hayfork and Hyampom. The Proposed Project will provide improved access and mobility to the town of Hyampom and forest recreation facilities, but is not anticipated to induce population or other commercial growth. The road will not be extended into previously unserved areas, but will stay within the existing roadway corridor. The Proposed Project is designed to accommodate existing traffic and retain existing traffic capacity, rather than add additional capacity. Travel time from Hayfork to Hyampom will not be significantly decreased, as the design speed is relatively low (30 to 40 km/h [20 to 25 mph]). Hyampom Road serves only Hyampom and is not a through route to other destinations. Hyampom is, and will remain, 35.4 km (22.0 mi.) from State Highway 3 in Hayfork. Therefore, in the absence of an attraction in Hyampom compelling drivers to travel the 35.4 km (22.0 mi.) from the state highway, it is unlikely tourism would increase due solely to the road's improved condition.

Hyampom Road will be safer and easier to drive with the Proposed Project. This may attract a limited number of people to move to Hyampom, including some retirees, who may otherwise decide to live elsewhere based on the condition of the road. However, it is unlikely that the population of Hyampom will increase significantly because of the improved roadway, absent economic incentives.

The current condition of Hyampom Road is not the reason for the decline in the timber and mining industries and closure of the Hyampom lumber mill. This is due to an overall decline in timber harvesting, especially on USFS lands, because of the listing of the NSO and Coho Salmon, and other environmental restrictions. Rehabilitation of Hyampom Road will not lead to a resurgence of timber or mining activities in Hyampom or Hayfork. However, in the event the environmental restrictions were lifted, and timber harvesting and/or mining resumed, the road would be capable of supporting the increase in resource traffic that would result.

As mentioned above, current trends in development of Hayfork and Hyampom consist of vineyards and small resorts in Hyampom, and small businesses, small manufacturing and agriculture in Hayfork, with the possible development of a retirement community. Reconstruction of Hyampom Road could facilitate a safe commute between Hayfork and Hyampom, if either community were to develop an economic base that would generate new jobs. While the road reconstruction would help facilitate this activity, population growth and increased traffic would only occur if the economy were to develop. The improvements to Hyampom Road would not change the cost-effectiveness of a commute from Hyampom to Weaverville, Redding, Eureka or other economic centers. In other words, rehabilitation of Hyampom Road, in and of itself, will not result in a significant increase in development of Hyampom or Hayfork as "bedroom communities". Therefore, it is expected that population growth in Hyampom would remain less than 1 percent per year, with or without the Proposed Project.

The Proposed Project will be consistent with and support many of the land use and transportation goals listed in Table 8. The Proposed Project will be compatible with Hayfork, Trinity County and USFS land use plans or management prescriptions. The Proposed Project supports the Hyampom Policy in the Land Use Element to "Maintain the existing low level of services" because it maintains the existing and intended two lane road without expanding it to accommodate additional traffic. The Proposed Project also "encourages the use of the valley's agricultural and timber land" by preserving safe and reliable truck access. The Proposed Project, upon completion, will provide beneficial effects in terms of water quality (reduced sedimentation and erosion into creeks) and improved fish passage with new bridges and larger culverts under the reconstructed road. In addition to preserving mobility for education, mail, medical, fire and law protection and cultural activities, the reconstructed road will also correct the existing deficiencies and improve the travel safety of Hyampom Road and also decrease maintenance costs. The reconstructed road will provide safer access to existing forest, hiking trails, scenic vista points, and other recreation opportunities along Hyampom Road.

3.2.3 Cumulative Impacts

3.2.3.1 Alternative 1 – No Action

There will be no cumulative impacts associated with the No Action alternative.

3.2.3.2 Alternative 2 – Reconstruction of Existing Alignment

The Proposed Project, when viewed together with other past, present and future activities in the region, is not anticipated to induce new development trends, disrupt or adversely affect any population or established communities in the Project Vicinity, or change land use

patterns or conflict with existing land use plans of Hayfork, Trinity County, or the USFS. The Proposed Project, in combination with proposed road reconstruction on Segment 1 could cause adverse effects on mobility by extending roadway closures over four to six construction seasons either through one or more roadway segment closures. Roadway closures would be inconvenient but temporary. This cumulative effect is considered to not be significant due to the temporary nature of the construction and roadway closures (no longer than 4 hours at a time, some night closures [any such closures will be well advertised in advance], only occasionally on Saturdays, and not on Sundays or holidays). The fuels reduction projects and the two bridge replacement projects over Hayfork Creek are not anticipated to result in any cumulative adverse land use effects in combination with the Proposed Project.

The combined County and FHWA reconstruction projects on Hyampom Road will result in a consistent two-lane roadway with shoulders all the way from Hayfork to Hyampom. However, the improved roadway is not expected to cause substantial population growth in Hyampom for the reasons described above. Although some individuals may choose to live in Hyampom if the road were improved, without an attraction such as jobs or a major resort, it is unlikely that the number of people visiting or living in Hyampom would increase substantially due solely to a 35.4-km (22-mi.) long, low speed two-lane road.

Other projects recently constructed in the Hyampom Valley include an 8-unit resort near the Hyampom Airport and a winery development (also in Hyampom). A senior housing facility is proposed at the corner of SR 3 and Hyampom Road. These projects have been approved and are considered consistent with the general land uses in the Project Vicinity and their effects on land use are not considered cumulative with this Proposed Project, nor will they significantly increase tourism or residential development.

3.2.4 Mitigation Measures

3.2.4.1 Alternative 2 – Reconstruction of Existing Alignment

No applications to amend existing planning documents are necessary. The Proposed Project is supported in all applicable planning documents, including those specifying transportation, recreation, land use, and resource management. No mitigation is proposed for impacts to land use and growth.

3.3 Social and Economic Conditions, and Environmental Justice

This section analyzes the community cohesion, economic stability, mobility, and ease of access to public facilities associated with the Proposed Project. This section describes the existing conditions of these factors and analyzes the effects of the proposed roadway improvements. This section also addresses Executive Order (EO) 12898 regarding the disproportionate effects on minority, low-income, and elderly groups.

3.3.1 Affected Environment

3.3.1.1 Demographics

The Proposed Project will affect both Hayfork and Hyampom communities; therefore, census data for both will be compared with Trinity County. Neither community is incorporated. Table 9 illustrates the population of Hyampom which includes Census Tract 3, Block Group 1 and Hayfork which includes Census Tract 3, Block Groups 2, 3, 4, 5, and 6.

TABLE 9
2000 Census for Trinity County, Hayfork, and Hyampom

	Trinity County		Hayfork		Hyampom	
Zone	**Actual Count**	**% of Total**	**Actual Count**	**% of Total**	**Actual Count**	**% of Total**
Total Population	13,022		2,315		234	
Race						
White	11,573	88.8%	1,961	84.7%	234	100.0%
Black	58	0.4%	3	0.1%	0	0.0%
Native American	631	4.8%	193	8.3%	0	0.0%
Asian	61	0.5%	4	0.2%	0	0.0%
Pacific Islander	15	0.1%	0	0.0%	0	0.0%
Other races	114	1.0%	9	0.4%	0	0.0%
Two or more races	570	4.4%	145	6.3%	0	0.0%
Hispanic*	517	3.9%	114	4.9%	11	4.7%
Age Group						
Under 19	3,234	24.8%	641	27.7%	43	18.4%
20 to 24	403	3.1%	86	3.7%	0	0.0%
25 to 34	1,026	7.9%	204	8.8%	7	3.0%
35 to 54	4,334	33.3%	743	32.1%	126	53.8%
55 to 64	1,784	13.7%	299	12.9%	27	11.5%
65 and Over	2,241	17.2%	342	14.8%	31	13.2%
Total	13,022		2,315		234	
Median Age	44.6		42.0		42.5	
Households						
Average Household Size	2.29		2.40		2.40	
Total Households	5,587		964		135	

* According to the US Census Bureau, Hispanics many come from numerous races, and are not separated into a racial category by themselves. Therefore, the total figures for the race category will add up to more than 100% if the Hispanic component is included in the total. This number was broken out to reflect the individuals that identified themselves to be of Hispanic origin, among all race categories.

Source: United States Census, 2000.

In reviewing 1990 to 2002, *California Department of Finance, Demographic Research Data,* Trinity County has maintained an average population of 13,000 from 1989 with little to no change projected through 2005 (CDOF 2003). Projections for 2010 reflect a population of 13,200 in Trinity County. While there was a period of negative population change between 1995 and 2001, the biggest change in demographics is a trend towards an increase in the number of persons above 35 years of age. In Trinity County and the Project Vicinity, the median age ranges from 42 to 48 years old as compared to California as a whole at 33 years of age (Census 2000). Relatively few persons are between 20 and 34 years old in both Trinity County and the Project Vicinity. This trend is expected to continue based on past United States Census data reflecting similar patterns.

3.3.1.2 Environmental Justice

Environmental justice refers to social equity in bearing the burdens of adverse environmental effects that may result from a Proposed Project. Some ethnic minorities, elderly, and low-income populations have historically experienced a disproportionate share of adverse affects resulting from large infrastructure projects. According to EO 12898, *Federal Actions to Address Environmental Justice in Minority Population and on Low Income Populations*, dated February 11, 1994, minority and low-income populations must not be disproportionately adversely affected by transportation or other such projects. In addition and in light of the fact that Trinity County has an aging population, the effect of the Proposed Project on elderly persons, (those over the age of 65) will also be analyzed. This subsection discusses the presence of minority, low-income families, and elderly persons. Table 10 illustrates criteria that were used to determine the presence of a high proportion of minorities, low-income residents, or elderly persons. As screening criteria, the area is compared with the State of California to determine whether there is a high presence of minorities, low income or elderly persons.

TABLE 10
Defining Minority, Low-Income and Elderly Populations and Evaluation Criteria

Population	Criteria*
Minorities, Low Income and Elderly Persons	Greater than or equal to the state average of the population within the Census Tract/Block OR percentage of affected area is meaningfully greater than the minority population percentage of the general population.

* EPA's Region 8 Environmental Justice Program

According to the United States Census, 2000, California contains a population of 59.5 percent Caucasian, 10.6 percent of the population is over 65 years old and 14.2 percent of the population lives below the poverty line. Table 11 indicates that over 80 percent of the population in Trinity County and the Project Vicinity is white-Caucasian. Because the Proposed Project will not occur until after 2005, the 2000 Census data for the elderly was considered for those 60 years and over. In 2005, this population will be 65 and over. Hayfork has 484 persons over 60 years of age, representing 20 percent of the total population. Hyampom has 40 persons of age 60 years or older, representing 17 percent of the total population. Both of these communities have a higher percent elderly population than the state of California.

TABLE 11
1999 Population Below Poverty Level by Block Group

	Hyampom	Hayfork					Project Vicinity	Trinity County
	Block Group 1, Census Tract 3, Trinity County, California	Block Group 2, Census Tract 3, Trinity County, California	Block Group 3, Census Tract 3, Trinity County, California	Block Group 4, Census Tract 3, Trinity County, California	Block Group 5, Census Tract 3, Trinity County, California	Block Group 6, Census Tract 3, Trinity County, California	Totals for Hayfork and Hyampom Combined Project Vicinity	
Total population:	234	437	573	789	427	164	2390	13,022
Persons with Income in 1999 below poverty level:	74	182	68	179	102	50	581	2435
Percent of Population	32%	42%	12%	23%	24%	31%	24%	19%

Source: US Census 2000 data. Percentages actually for the year 1999.

According to 2000 Census data, 19 percent of Trinity County qualified as below the poverty level, and 24 percent of the Hayfork/Hyampom project vicinity, as compared to 14 percent for California. According to the United States Department of Labor and United States Department of Health and Human Services, the poverty level in 1999 was defined as those persons with an income of less than 70 percent of the lower standard income level. This translates to a poverty level for a one-person family, whose yearly salary would be $7,000; a yearly income for a two-person family would be $11,060; for a three-person family $13,880; and four-person family, $16,700. Table 11 illustrates the individual data for each block group for both Hyampom and Hayfork.

3.3.1.3 Community Resources

Relative to the population size, both the Hayfork (population 2,412) and Hyampom (population 234) communities support several public meeting facilities, which is indicative of strong cohesive communities. Table 12 lists all the publicly accessible centers for both Hayfork and Hyampom.

Several of the above mentioned facilities are used for a multitude of community functions, such as the Trinity County Fairgrounds which is used for the annual Trinity County Fair fireworks displays and multiple service organization meetings. Service organizations include Hayfork Valley Horseman's Association, Hyampom Rod & Gun Club, Hayfork Chamber of Commerce, Lion's Club, Rotary Club, Mountain Actors Workshop, 4-H, Future Farmers of America, Boy Scouts, Pathfinders Club, Log Cabin Quilter's Guild, Peanut Women's Club, Nor-Rel-Muk Band of Wintu Indians, Hayfork Garden Club, Roderick Seniors Center, Hayfork Community Child Care Project, Hayfork Community Spirit Womens' Club, Hayfork Scholarship Foundation, and Valley High School Scholarship Foundation.

TABLE 12
Hyampom and Hayfork Community Resources

Resource Type	Hayfork	Hyampom
Community Center	Hayfork Community Center	Hyampom Community Center
Library	Trinity County Library	
Primary and Secondary Public Schools:	Hayfork Elementary School, Hayfork High School Valley Continuation High School	Hyampom Elementary School
Youth Center	Hayfork Youth Center	
Private School	Hayfork Seventh Day Adventist School	
Parks/Recreational Resources	Hayfork Park	Community Park
	County Fair Grounds	
	Ewing Reservoir	
Forest Resources	US Shasta-Trinity National Forest	US Shasta-Trinity National Forest
Cultural Facilities	Mountain Actors Workshop	Hyampom University

Informal interviews with several citizens of Hayfork and Hyampom indicate the attraction for living in these communities is access to the beauty of surrounding natural resources and the remote location. Hayfork Creek flows into the South Fork of the Trinity River, both of which are considered to provide high quality fishing. For a majority of its length, Hyampom Road is surrounded by the STNF. Abundant recreational facilities within the STNF bring many visitors to the area to enjoy fishing, hiking, camping, bird watching, swimming, cross country skiing, mountain biking, and equestrian riding. Via Hyampom Road, recreationalists can access:

- South Fork of the Trinity River National Recreation Trail
- Wintoon Flat Trail
- Bear Creek Trail
- East Tule Trail
- Indian Valley – Butter Creek Trail system
- Little Rock Day use picnic site
- Big Slide Campground
- Slide Creek Camping

Also, a private summer camp, called Camp Trinity at the Bar 717 Ranch, receives access directly from Hyampom Road. Throughout summer and fall, the camp charters several busses to transport children from various urban areas throughout California to Camp Trinity to experience a rural, mountain farm life. The Bar 717 Ranch also hosts educational camps for local youth, such as the annual "environmental camp".

3.3.1.4 Transportation, Pedestrian, Bicycle, and Emergency Services

Hyampom Road is accessible from Highway 3 in Hayfork. Hyampom does not have any sidewalks, whereas Hayfork has been actively constructing sidewalks and bike lanes per the Hayfork Community Plan. The Hayfork Community Plan indicates a coordination effort to

plan for wide shoulders on Highway 3, portions of Hyampom Road (Segment 1 only), and other main roads in Hayfork for a bikeway. Both communities have their own airports, the Hyampom Airport and the Hayfork Airport. The only transit provision is a commuter-oriented shuttle between Weaverville and Hayfork. Hyampom Road is paved to Hyampom; however, there are no other improved roadways (paved, winter maintained) leading out of Hyampom. For this reason, travelers on Hyampom Road are local or destination-based traffic such as school bus drivers, mail carriers, other deliveries services, logging trucks, residents, or tourists visiting the STNF and destination-specific accommodations. There is little to no through traffic on Hyampom Road. There are a total of four residences between Segments 2 and 5 that use Hyampom Road for access directly to their homes.

Emergency services include the Hayfork Fire Station in the center of the community on Highway 3. This volunteer staff is augmented by the USFS and the California Department of Forestry (CDF) fire protection for both wildlands and structures. Staffing for USFS and CDF is heightened during the high fire season summer months. Hyampom also has a volunteer fire department stationed in Hyampom. Police service is provided by the County Sheriff's Department for protection of persons and property and the California Highway Patrol for traffic safety issues.

Although Hayfork has a small clinic with a part-time doctor and a full-time private dentist, Hayfork and Hyampom residents must travel to Weaverville, Redding, or the Arcata/Eureka area for the majority of their medical needs. The Trinity Ambulance has one ambulance stationed in Hayfork. Many residents subscribe to a land and air ambulance emergency response system to provide efficient access during a medical emergency, because both communities have their own airport. The Hayfork Community Center doubles as a public office for public services such as Trinity Occupational Training, Human Response Network, Department of Motor Vehicles, and Trinity Health and Human Services.

The U.S. Postal Service delivers and picks up mail in Hyampom. The mail truck leaves Hayfork at 11:00 a.m. and arrives in Hyampom around 12:00 noon. The mail truck picks up and delivers mail at the Hyampom Post Office. The truck must leave Hyampom promptly to arrive in Hayfork by 1:00 p.m. to make the connection to points beyond Hayfork.

Most businesses in Hyampom rely on commercial delivery services, such as Federal Express and UPS. These services currently do not pick up packages in Hyampom, but do deliver there. Pick-ups are made in Hayfork only. The delivery trucks typically go to Hyampom from Hayfork between 4:00 p.m. and 5:00 p.m., and return to Hayfork by 6:00 p.m. Priority packages are supposed to arrive by 5:00 p.m. The deliveries sometimes include medical supplies. Propane is used for domestic and business purposes, and is delivered to Hyampom by trucks based in Hayfork or Weaverville.

3.3.1.5 Economic Indicators

In an article in the March 24, 2003 San Francisco Chronicle in a series titled, "California's Rural Economy," the author refers to Hayfork as "one of the most economically depressed towns in California. Median family income in 1999 was $25,791, while the state's is $53,025." Although Hayfork was originally founded on logging, the United States Department of Commerce (USDOC), Bureau of Economic Analysis indicates that the largest percentage of current jobs are in service industries, followed by government, and a distant third in retail

sales industries. The majority of service and retail jobs are low paying compared to the logging and mill work jobs of the past. Table 13 summarizes comparative data on industrial changes within Trinity County between 1995 and 2000 as well as projections through 2010.

According to the USDOC, the only industry projected to grow is the service industry. These jobs include services to businesses, government, and other organizations which include lodging, amusement, health, legal, engineering, and education.

Businesses in Trinity County are not required to have a business license; therefore, the Chamber of Commerce has the only listing of businesses in the area. The Chamber only lists eight businesses in Hayfork and four in Hyampom. The primary employers in Hayfork are the USFS and the Mountain Valley Unified School District.

The *Trinity County Draft Economic Development Action Plan*, dated 2001, does not mention Hyampom. But it does describe the desired future condition of Hayfork to be…

> ...a diverse economic base which capitalizes on the unique natural resources of Hayfork and enhances the economic, social and environmental well-being of our rural community. Identified areas for growth potential include agricultural, forest resources, tourism, small business recruitment and retention and development of small cottage type industries, home businesses, marketing and merchandising, infrastructure improvement and facility development.

TABLE 13
Projected Growth for Major Industries (in terms of number of jobs) within Trinity County

Industry	1995	2000	2005	2010
Services	1,208	1,091	1,500	1,700
Government	1,379	1,403	1,400	1,400
Retail Trade	867	835	900	900
Manufacturing	614	426	500	500
Construction	266	267	300	300
FIRE[1]	224	285	300	300
Agriculture, mining[2]	142	294	300	300
TCPU[3]	167	162	200	200

[1] FIRE = Finance, Insurance, and Real Estate
[2] Agriculture and Mining = Includes forestry and hunting
[3] TCPU = Transportation, Communications, and Public Utilities
Source: USDOC, Bureau of Economic Analysis, 2002.
Note: The USDOC counts part-time, full-time, and proprietors' employment equally.

From this vision, Hayfork-specific action plans are as follows:

- Continue implementation of the Hayfork Community Plan.
- Finish the Hayfork sewer project.
- Enhance and expand recreational opportunities in the area, including trails for recreation and tourism.
- Expand small business development in Hayfork.

- Continue to emphasize utilization of forest lands on the basis of sustained yield and biological diversity. Identify and promote new and non-traditional uses of forest materials. Encourage the development of methods and/or processes to utilize materials resulting from fuel reduction, thinning, and salvage.
- Complete the Hayfork business incubator plan.
- Protect water resources from over-utilization.

Hayfork's economic development objectives indirectly refer to Hyampom Road as access to "recreational opportunities" and "utilization of forest lands".

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 - No Action

From an environmental justice standpoint, the No Action alternative would have no adverse, disproportionate effects to low-income, minority, or elderly residents. The No Action alternative would not affect the local economy, the social fabric, nor the emergency services that serve the community. This assumes that the existing road condition does not worsen. If the roadway should become impassible due to a storm event or gradually deteriorates to less than one car width, Hyampom would be cut off, except for air flight and use of USFS roadways during non-winter months[1]. Any long-term physical disruption of Hyampom Road access that could not be quickly remedied may cause adverse economic effects to Hyampom residents and businesses, including low-income and elderly residents.

3.3.2.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

The construction phase is anticipated to last four to six summers, subject to the availability of funds, thereby temporarily affecting people's travel between Hayfork to Hyampom. The construction will involve full daylight road closures up to 4 hours at a time within the construction seasons (May 1 to October 31). There may be some night closures, and any such closures will be well advertised in advance. Depending on funding, construction, as well as road closures, may occur on more than one segment at a time. If there are concurrent projects on more than one segment, FHWA and TCDOT will attempt to coordinate closure schedules so that the whole road is closed or open simultaneously. See Section 3.14 Construction for further details. Construction activities may also cause noise disturbances. (See Section 3.5 for a description of noise effects.)

As outlined in Chapter 2 of this document, the Proposed Project will only require small strips of two private properties along Segment 2 of the existing road and no relocations.

While construction activities and roadway closures will inconvenience travelers to and from Hyampom, this is considered a temporary effect. The Proposed Project will not have a disproportionate effect on minority, low income, or elderly persons. During the construction period, emergency service access will be accommodated by radio communication between construction crew and emergency service providers. Because the community routinely uses air ambulance service for emergency situations, and because construction will take place

[1] USFS roads in the vicinity of Hyampom are not maintained or snow plowed during winter months.

during the summer months when disruption of air ambulance service due to bad weather does not usually occur, the construction would not jeopardize emergency service provision. Construction schedules would adapt to routine community service needs such as mail, commercial delivery services (UPS, Federal Express) and school bus service. Bicyclists and pedestrians occasionally use Hyampom Road. They will not be granted through access during construction for insurance reasons.

Effects of road construction on businesses and tourism will be minimal. Due to the remote nature of Hyampom Road and the activities accessed by Hyampom Road users, travelers are assumed to be destination-oriented and have either pre-arrangements or are camping or fishing and will likely be flexible in their travel times. These travelers can be informed about construction constraints when reservations are made.

The road closure schedule would be designed to accommodate the mail delivery schedule. However, postal service (mail) and other delivery service (UPS and Federal Express) delays may be expected during roadway construction.

Because the delivery service schedule is late in the day, it may be possible to adjust the delivery schedule, General Store hours and/or the road closure schedule to accommodate deliveries without interrupting these services. However, this accommodation is not assumed.

AmeriGas has only one client in Hyampom, Meridith Vineyards. Their propane delivery trucks originate in Weaverville, and they try to combine deliveries to Hayfork and Trinity Pines with their Hyampom deliveries. The AmeriGas manager was very concerned about his drivers getting stuck in Hyampom for extended periods while making a delivery to just one customer.

Campora delivers propane to Hyampom, and services their customer's tanks. Trucks are stationed in Hayfork. The local service manager states that the road closure schedule could be accommodated with some minor adjustments. He was concerned about emergencies, such as a major tank leak. These types of situations would be handled by the procedures stated in Section 3.14.2.7, Emergency Preparedness.

The mail, commercial delivery services and at least one propane delivery service can be continued through construction with only minor adjustments to their schedules or to the proposed road closure schedule. The Proposed Project will therefore not result in loss of these services.

Benefits to the local economy are twofold: 1.) work opportunities that include logging, and 2.) additional spending within the local economy. Logging will be part of the Proposed Project to clear areas needed for new cut slopes and embankments. Logging will result in increased revenues to Hayfork, Hyampom, and Trinity County, and construction workers will spend money in the local economy. These two benefits are explained below.

Logging

The road realignment and widening will necessitate the cutting and removal of trees along the roadway. The sale and procurement of these trees will be administered through the USFS. The forest lands along Hyampom Road are comprised of mixed conifer-hardwood. The predominant tree is Douglas fir with minor quantities of white fir, sugar pine, incense

cedar, and Ponderosa pine. Those conifers within the construction area will be logged and sold to the mills for timber. A typical Douglas fir with a 71-centimeter (cm) (28-inch [in.]) wide trunk is the approximate equivalent of 1,000 board feet (Schaefer 2003). It is estimated that approximately 96 ha (237 ac.) of trees of varying sizes may be logged for a conservative estimate of 500,000 board feet between Segments 2 through 5. Trees to be removed would be sold if suitable for lumber, which would not affect the local economy. However, the contractor who sells the logs to the mill may receive a potential price of $40,000 to $50,000 (2003 dollars). The cutting and removal of trees may create up to five temporary jobs for one summer.

Increased Funds to Local Economy

Based on economic models, new projects to a rural area can create a fiscal benefit for more than just the construction workers. Due to the remote location of the work site, workers may be inclined to use nearby services and accommodations that would bring additional revenue to local businesses in Hyampom and Hayfork.

A regional economic analysis was conducted to identify the total effect of project construction activities on the Trinity County economy[2]. Direct construction expenditures could generate a short-term overall increase in county employment equivalent to 3 full-time jobs for 8 months a year for up to 6 years. The total temporary increase in annual personal income for the county associated with project construction activities is estimated at approximately $6 million, which could be split over 6 calendar years, depending on the eventual construction schedule. The direct increase in the value of business output for all industries in the county attributable to project construction is estimated to be $1,000,000 over 6 years.

Indirect and induced impacts were estimated using an IMPLAN Input-Output model of Trinity County. IMPLAN is an economic modeling software program. The estimated indirect and induced employment within Trinity County would be 6 and 2 jobs, respectively. These additional jobs result from the approximately $373,700[3] (in 2001 dollars) in annual local construction expenditures as well as $132,300 in annual spending by local construction workers that would occur over the 6-year construction period and include items such as gas, supplies, and accommodations during periods of construction activity. The $132,300 represents the disposable portion of the annual construction payroll (here assumed to be 70 percent of $189,000[4]). Indirect and induced income impacts were estimated at $137,300 and $24,500, respectively.

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[2] The analysis uses an aggregated, regional economic input-output model for Trinity County, based on the IMPLAN Professional software and 2001 data set. The IMPLAN data set is constructed using information from government sources, including the U.S. Bureau of Economic Analysis, U.S. Census Bureau, U.S. Department of Labor Statistics, and the U.S. Department of Agriculture.

[3] Local expenditures on materials are assumed to be 10% of the overall expenditures on materials. Expenditures on materials are assumed to be 50% of total costs for Segments 2, 4, and 5, or 50% of $18 million (low estimate) to $20 million (high estimate). In the case of Segment 3, expenditures on materials are assumed to be $1.18 million. Annual local portion of expenditures on materials is then derived by dividing the local portion by 6 years (the construction duration).

[4] Local construction payroll expenditures are assumed to be 15% of the overall construction payroll expenditures. Construction payroll is assumed to be 30% of total costs for all segments. For Segments 2, 4 and 5, annual local construction payroll is assumed to be $18 million (or 20 million) multiplied by 30% multiplied by 15% and then divided by 6 years (construction duration). Thus for the $18 million estimate, the annual local construction payroll is $135,000 while for the $20 million estimate, it is $150,000. In the case of Segment 3, the local annual construction payroll is assumed to be $4,511,000 multiplied by 30% multiplied by 15% and then divided by 6 (construction duration) or $33,833.

While the economic effects of the Proposed Project are a net benefit to Trinity County, it is not considered a substantial benefit relative to the total personal income of $140,930,000 in 2001 (CDOF 2003).

Operation Phase

Overall accessibility will be improved for all residents, tourists, school buses, mail, delivery, medical, law and fire protection, emergency, and community services. Current annual maintenance costs for Hyampom Road since 1998 have ranged from $87,000 to $137,000 (Trinity County 2003c). Maintenance costs are projected by Trinity County staff to be reduced by up to 50 percent for the first 10 years depending on weather factors. These savings will be redirected to other maintenance needs within the county.

The projected affect on tourism will be more reliable, easier and safer access. Hyampom will remain remote, and the Proposed Project will not expand capacity of the roadway; therefore, no substantial increase in tourism or associated businesses is expected to result from the Proposed Project. However, to some extent, there may be more repeat visits by tourists who may be less inclined to return under current road conditions.

3.3.3 Cumulative Impacts

3.3.3.1 Alternative 1 No Action

No direct cumulative impacts would occur with Alternative 1. However, indirectly all activities, including weather and travel, may cumulatively worsen the condition of Hyampom Road and the mobility options for travelers to and from Hyampom. Any long-term physical disruption of Hyampom Road access, that could not be quickly remedied, may cause adverse economic effects to Hyampom residents and businesses.

3.3.3.2 Alternative 2 Reconstruction of Existing Alignment

The Proposed Project, when viewed together with other past, present, and future activities in the region, will contribute positively to the regional population and economy in the long-term. On the negative side, the cumulative impacts can also result in long periods of road closures. The positive cumulative effects are improved and safer access, building upon the existing road alignment.

The regional economy is depressed due to several policy changes in environmental and timber management, resulting in the exodus of well-paying timber-oriented businesses. However, recent business efforts to support tourism and economic incubator businesses (consistent with the Trinity County Draft Economic Development Action Plan) are building new economies, such as vineyards, small product development, and tourism-oriented businesses. The cumulative effects will ultimately result in a more diversified and sustainable economy. The Proposed Project contributes a positive income to the region which offers a temporary influx of money to Trinity County as well as cumulatively improves access to facilitate sustaining and developing these diverse businesses.

TCDOT will be independently reconstructing Segment 1 prior to reconstruction of Segments 2 through 5. The cumulative effect would be road closures for up to eight construction seasons, although there may be years during this period when there are no road closures. Although unlikely, if projects are concurrent, FHWA and TCDOT will attempt to coordinate

closure schedules so that the whole road is closed or open at the same time. Expected traffic delays for the Segment 1 project will be approximately 30 minutes.

There is a County Airport in Hyampom, and there are several USFS roads connecting Hyampom to SR 3, SR 36, and SR 299. These roads are not winter-maintained (there is no snow removal), but they are usually passable during the construction season (May 1 to October 31). There will be no formally designated detour during construction of these projects on Hyampom Road. The fuels reduction projects and the two bridge replacement projects over Hayfork Creek are not anticipated to result in any cumulative adverse social and/or economic effects to the local community in combination with the Proposed Project. The new Elder Care Facility and the recently completed Hayfork airport safety improvements are considered to contribute social and economic benefits to the local community.

3.3.4 Mitigation Measures

3.3.4.1 Alternative 2 - Reconstruction of Existing Alignment

A Construction Management plan (described in Section 3.14 of this EA) will be developed to include public information and provisions for emergency services. A public information element will be developed and implemented by a public information manager with responsibility for maintaining communication with affected residents and the local government and public services in offering advanced notice of upcoming construction activities and the effects of those activities. The public information manager will maintain regular communication with the engineer and the contractor, and will be well versed on all aspects of the construction schedule. A public information plan should address both information distribution to local and tourist communities including a web site, web link connections from tourist web sites, hotlines, roadside signs, construction schedule fact sheets and particular outreach to businesses, delivery services, local residences, and emergency service providers. The public information element will include a description of communication methods, lists of ambulance, fire, sheriff, school delivery services, post office and public utilities districts' contacts, newspapers, and frequency of coordination with concerned members of the community and businesses.

The Project Engineer and Construction Contractor will coordinate closely with emergency service providers before and during construction. An Emergency Services Plan (which will include a Fire Plan) will be developed between the FHWA, Contractor, TCDOT, USFS, Hayfork Fire District, Hyampom Community Services District, Trinity County Sheriff's Office and Trinity Ambulance Service. The plan will establish lines of communication so that the construction crew receives notification of an emergency need to open the road prior to the arrival of emergency vehicles at the site. Procedures will also be established to keep emergency service providers advised of the location of construction crews, the activities going on at the time and the estimated time to clear the road for each activity. Communication will also include current information on the status and passibility of alternate routes. The emergency service providers will use this information to determine the fastest way to reach the emergency site under the present circumstances.

The Fire Plan will at minimum require that the Contractor have a serviceable telephone, radiotelephone or radio system connecting each construction operation with the

Contractor's headquarters. The communication system will provide prompt and reliable communications between the Contractor's headquarters and USFS via commercial or USFS telephone. The communications system will be operable during Contractor's operation in the fire precautionary period and at the time fire patrol service is required.

Additionally, the public information manager, further described in Section 3.14, will be responsible for providing up-to-date road closure information to the general public, especially Hyampom residents, business owners, and delivery service providers. Road closure information, including closure times and locations, will be provided by signs posted at the work site, at each end of Hyampom Road and at major intersections. The schedule will also be posted in various locations in Hyampom and Hayfork, published in the local newspaper, posted on the internet, and/or mailed to post office boxes in Hyampom and Hayfork. The information would also be available by calling the public information manager or the TCDOT office in Weaverville. Over the long term, the Proposed Project will result in an economic benefit to the local economy. No mitigation measures regarding Social and Economic Conditions and Environmental Justice are required.

3.4 Air Quality

This section analyzes air quality effects which may result from the construction and operation of the proposed improvements to Hyampom Road Segments 2, 3, 4, and 5. Potential effects to air quality from the operation of Hyampom Road could result from emissions from vehicles, while temporary effects to air quality could result from construction activities, potentially including asphalt and concrete batch plants and rock crushers. The source of construction emissions will include heavy-duty equipment operation and fugitive dust due to activities such as clearing, grading, excavating, blasting, and mixing asphalt and concrete.

3.4.1 Affected Environment

The United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have designated each county within California as either attainment or non-attainment of their respective air quality standards. Attainment of the standards implies that the concentrations of air pollutants in the county are consistently below the respective standard. Areas of the country and state where air pollution levels persistently exceed the national ambient air quality standards may be designated "non-attainment."

The Proposed Project is located in Trinity County in the North Coast Air Basin (NCAB). Under the federal Clean Air Act, the USEPA has designated the counties of the NCAB as attainment with respect to the National Ambient Air Quality Standards (NAAQS) for ozone (O_3), particulate matter less than 10 microns in equivalent diameter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_X), sulfur dioxide, and lead. With respect to the California Ambient Air Quality Standards (CAAQS), CARB has designated the counties of the NCAB as non-attainment for PM_{10}, and attainment or unclassified for O_3, CO, sulfates, and hydrogen sulfide. The California Clean Air Act does not require air quality attainment plans for areas that violate the state PM_{10} standards. CARB also has regulations to control grading and mining of rock containing asbestos. Ultramafic rocks, known to contain

asbestos, can be found in Trinity County, but are not found in the Project Vicinity (Haramy 2002).

The North Coast Unified Air Quality Management District (NCUAQMD) is the local agency charged with the responsibility of preparing, adopting, and implementing mobile, stationary, and area emission control measures and standards. The NCUAQMD *Particulate Matter Attainment Plan, 1995* (NCUAQMD 2002) sets forth control measures for mobile sources, wood stoves, and other combustion sources to reduce PM_{10} emissions. Recent monitoring data from the Trinity County are shown in Table 14. With the exception of year 2001, the monitoring data show that the highest 24-hour PM_{10} concentrations recorded in 2000 and 2002 are very close to the state standard (50 micrograms per cubic meter [$\mu g/m^3$]).

TABLE 14
Summary of PM_{10} Ambient Monitoring in Trinity County

Monitoring Station	Pollutant	Averaging Time	2000	2001	2002
Weaverville - Courthouse	PM_{10} ($\mu g/m^3$)	Annual Geometric Mean	16	15	18
		Annual Arithmetic Mean	19	18	16
		24 Hour[1]	50.8 (1 State) (0 Federal)	72.6 (3 State) (0 Federal)	52.3 (2 State) (0 Federal)

[1] The number reported is the highest PM_{10} result for the monitoring station.

( ) = number of days in which a violation of the state or national standard, was recorded during the year.

Source: CARB 2002.

3.4.2 Environmental Consequences

A transportation project can affect regional air quality if emissions of ozone precursors (NO_X and reactive organic gasses [ROC]) from traffic are greater with the project than without the project. In addition, if the region is designated as a non-attainment or maintenance area (Federal standards) for CO or PM_{10}, then a project is subject to conformity requirements. The USEPA has designated the counties of the NCAB as attainment for O_3, PM_{10}, and CO, with respect to the NAAQS, and is therefore not subject to transportation conformity requirements.

The pollutants of primary concern when assessing localized effects of transportation projects are CO and PM_{10}. High CO and PM_{10} concentrations tend to accumulate near areas of heavy traffic congestion where average vehicle speeds are low. Tailpipe emissions are of primary concern when assessing local effects of CO and PM_{10} along paved roads, especially where unusually large numbers of diesel-powered vehicles can be expected to occur. Increased average vehicle speeds can cause surface dust to become airborne; however, it is extremely

unlikely that local increases in PM_{10} concentrations would be associated with projects that improve the LOS on roadways (UC Davis 1994). Potential effects to air quality associated with the operation of the Hyampom Road improvements would primarily result from emissions from motor vehicles. The results of the traffic analysis (Chapter 1) show that Hyampom Road will remain at a LOS A.

Short-term effects to air quality may result from the construction of Hyampom Road. Construction activities typical for roadway projects (excavation, grading, clearing, loading/unloading trucks, paving, blasting, the possible use of an asphalt or concrete batch plant and rock crusher) were assumed to represent construction activities for this Proposed Project.

3.4.2.1 Alternative 1 - No Action

Air quality in the Project Vicinity would not change under the no action alternative.

3.4.2.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

PM_{10} emissions from the construction of the Proposed Project would temporarily affect air quality. These emissions are due to heavy equipment operation (including a possible asphalt or concrete batch plant and rock crusher) and activities such as clearing, grading, excavating, loading/unloading of trucks, paving, rock blasting and travel on unpaved roads. These construction activities would generate increased emissions of fugitive dust (PM_{10}) and CO (diesel and asphalt fumes) that will temporarily affect local air quality.

The geotechnical report of the Proposed Project road segments (Haramy 2002) determined that the site is underlain by decomposed, weathered granitic rock. The study did not detect the presence of rock containing asbestos or ultramafic rock in the Project Vicinity. Therefore, grading or other ground-disturbing activities in the Project Vicinity would not result in airborne asbestos.

Asphalt and Concrete Batch Plants

The Proposed Project would involve operation and permitting of asphalt or concrete batch plants and rock crushers. It may also involve the use of stationary construction equipment (e.g., generators, air compressors, and welders) over 50 brake horse power (bhp). If such equipment is present for more than 45 days, it would require air quality permits from NCUAQMD. Stationary construction equipment exceeding 50 bhp remaining less than 45 days and emitting less than 2 tons per year of any air contaminant must have a written exemption from the NCUAQMD.

Batch plants would generate O_3 precursor compounds (i.e., volatile organic compounds [VOCs] and NO_X) from the operation of combustion engines, construction and operation of the batch plants, and would generate PM_{10} emissions from earthwork activities and batch plant construction and operations. Table 15 presents the annual emission estimates for operation of the two proposed types of batch plants.

Contractors will be required to obtain permits for the asphalt and concrete batch plants under the NCUAQMB rules, and would be required to operate the plants in compliance with all applicable rules and regulations. No adverse effects are anticipated due to compliant operation of the permitted batch plants.

Construction emissions, if left unmitigated, would produce a temporary but adverse effect on local air quality. Therefore, mitigation measures are prescribed to minimize emissions during construction. With mitigation, the air quality effects associated with Proposed Project construction are expected to be minimized.

TABLE 15
Estimated Total Annual Emissions During Batch Plant Operations

Emission Source	CO ton/yr	NO_X ton/yr	VOC ton/yr	SO_X ton/yr	PM_{10} ton/yr
Drum Mix Asphalt Batch Plant	3.3	0.7	0.8	0.1	0.6
Central Mix Drum Concrete Batch Plant	N/A	N/A	N/A	N/A	1.0
Total Batch Plant Operations	3.3	0.7	0.8	0.1	1.6

Note: CO – carbon monoxide
N/A – Not Applicable
NO_X – oxides of nitrogen
VOC – volatile organic compound
SO_X – sulfur oxides

PM_{10} – particulate matter less than 10 microns in diameter. For asphalt drum mix plant, emissions calculations assumed fabric filter control of sources that vent to the atmosphere.

Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: *Stationary Point and Area Sources*, Section 11.1, Hot Mix Asphalt Plants (USEPA, March 2004).

PM_{10} emission factors for operating the central mix drum concrete batch plant were also obtained from AP-42, Section 11.12, Concrete Batching (USEPA, October 2001).

Operation Phase

The operation of Hyampom Road after completion of construction is not expected to cause an effect to regional air quality. The NCAB is in attainment for O_3 and new emissions of NO_X and ROC would be negligible. Long-term, localized impacts to air quality from emissions of CO (diesel and asphalt fumes) and PM_{10} (dust) resulting from the operation of the Proposed Project are not expected to affect air quality for the following reasons:

- The LOS for the Hyampom road will remain at level A;
- Traffic volumes are not expected to increase more than the no action alternative;
- The percentage of heavy duty diesel trucks using the route will not increase;
- The percentage of cold start vehicles using the route will not increase; and,
- The Proposed Project will not move traffic closer to a receptor.

3.4.3 Cumulative Impacts

3.4.3.1 Alternative 1 - No Action

No direct cumulative effects would occur with Alternative 1.

3.4.3.2 Alternative 2 - Reconstruction of Existing Alignment

Although the Proposed Project would add PM_{10} to the NCAB during construction, which does not meet State Standards for this pollutant, the effect of the Proposed Project would be temporary. The combined short-term effects from the construction of the roadway Segment 1, along with Segment 2 through 5, are not expected to result in cumulative effects because the construction of the segments are likely to occur at different times and effects will be

localized to the area under construction. For similar reasons, the fuels reduction projects and the two bridge replacement projects over Hayfork Creek are not anticipated to result in any cumulative adverse air quality effects in combination with the Proposed Project. Furthermore, mitigation measures have been incorporated in the other construction projects which will serve to minimize overall cumulative effects. If the mine abandonment area is used as a waste area for the Proposed Project, the impacts would be part of the Proposed Project, and are identified above. If the mine abandonment project is done separately from the proposed project, there would be no cumulative effects because construction would occur at a different time and the effects will be localized to the area under construction. Therefore, the cumulative effects of the project to the NCAB would be minimal.

3.4.4 Mitigation Measures

3.4.4.1 Alternative 2 – Reconstruction of Existing Alignment

Construction Phase

The Proposed Project will comply with all applicable NCUAQMD rules and regulations.

The following methods to reduce fugitive dust emissions are recommended under Rule 430 by the NCUAQMD:

- Cover open-bodied trucks when used for transporting materials likely to give rise to airborne dust.
- Use water or other dust suppressants for control of dust in construction operations, grading of roads, or the clearing of land.
- Apply water or other dust suppressants on dirt roads, material stockpiles, and other surfaces which can give rise to airborne dust.
- Promptly remove earth or other material from paved streets onto which earth or other material have been transported by trucking or earth moving equipment, erosion by water, or other means.

Other measures to address dust suppression will include:

- Restrict speeds of vehicles in and around construction activities.
- Frequently water disturbed, unpaved surfaces or use other forms of dust suppressants.
- Control dust from material storage piles by spraying with water or dust suppressants.
- Minimize the disturbed area and the time between initially disturbing the soil and revegetating or other surface stabilization.
- Water active grading as appropriate.
- Cover all trucks hauling dirt, sand, silt, or other loose materials or maintain at least 15 cm (6 in.) of freeboard.

To mitigate emissions from heavy equipment operation, construction vehicles will be kept in proper running condition and operated to reduce equipment idle time. The short-term air

quality effect from construction will be minimized with the implementation of these mitigation measures.

Operation Phase

No mitigation is proposed for the operational phase of the Proposed Project.

3.5 Noise

This section has been prepared to meet the requirements of the Title 23 Code of Federal Regulations [CFR] Part 772–Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772, 1992) in accordance with the FHWA Highway Traffic Noise Analysis Abatement Policy and Guidance (USDOT 1995). Modeling was conducted with the FHWA Traffic Noise Model (TNM) LookUp Program (FHWA 2004).

3.5.1 Affected Environment

3.5.1.1 Noise Environment

Vehicular traffic on Hyampom Road is the primary source of noise in the Project Vicinity. The Project Vicinity is comprised of scattered residences within a heavily forested area. This road is in a remote mountainous region and the current average daily traffic volume of Segment 1 is 929 vehicles. The average daily traffic volume for all other segments is 137 vehicles. Five percent of the traffic volume is comprised of trucks and delivery vehicles. The four private residences located along Segment 2 are considered noise sensitive receptors. Although there currently are no NSO nests located near the roadway, if an owl did nest within 1 mile of the road, it would be considered a noise sensitive receptor. Impacts of noise on NSOs are discussed in the Biology section (Section 3.9).

3.5.2 Environmental Consequences

3.5.2.1 Fundamentals of Acoustics

Noise is defined as unwanted sound. There are several different ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. In this subsection, some statistical noise levels are stated in terms of decibels on the A-weighted scale (dBA). Noise levels stated in terms of dBA reflect the response of the human ear by filtering out some of the noise in the low and high frequency ranges that the ear does not detect well. The A-weighted scale is used in most ordinances and standards. The equivalent sound pressure level (L_{eq}) is defined as the average noise level, on an energy basis, for a stated period of time (e.g., hourly). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighted curve. The sound level meter also performs the calculations required to determine the L_{eq} for the measurement period.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise produces effects in the first two categories only. However, workers in industrial plants typically experience noise effects in the last category. No completely satisfactory method exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of standard is primarily due to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparing it to the existing or "ambient" environment to which that person has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by the listeners.

With regard to increases in A-weighted noise level, knowledge of the following relationships will be helpful in understanding this section:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- Outside the laboratory, a 3-dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
- A 10-dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.

Table 16 shows the relative A-weighted noise levels of common sounds measured in the environment and in industry for various sound levels.

TABLE 16
Typical Sound Levels Measured in the Environment and Industry

Noise Source At a Given Distance	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (30 m/ 100 ft.)	130		
Jet Takeoff (60 m/ 200 ft.)	120		Pain Threshold
	110	Rock Music Concert	
Pile Driver (15 m/50 ft.)	100		Very Loud
Ambulance Siren (30 m/100 ft.)			
	90	Boiler Room	
Freight Cars (15 m/50 ft.)		Printing Press Plant	
Pneumatic Drill (15 m/50 ft.)	80	In Kitchen With Garbage Disposal Running	
Freeway (30 m/100 ft.)			
	70		Moderately Loud
Vacuum Cleaner (3 m/10 ft.)	60	Data Processing Center	
		Department Store	
Light Traffic (30 m/100 ft.)	50	Private Business Office	
Large Transformer (60 m/200 ft.)			
	40		Quiet

TABLE 16
Typical Sound Levels Measured in the Environment and Industry

Noise Source At a Given Distance	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
Soft Whisper (1.5 m/5 ft.)	30	Quiet Bedroom	
	20	Recording Studio	
	10		Hearing Threshold

3.5.2.2 Regulatory Criteria

Traffic noise levels are evaluated by comparing them to FHWA noise level criteria. These criteria are based on peak traffic hour noise levels. The noise abatement criterion (NAC) for the project is 67 dBA (23 CFR 2005). FHWA requires that traffic noise abatement measures be considered when the NAC is "approached" or exceeded. FHWA also considers a traffic noise effect to occur if predicted peak-hour traffic noise levels "substantially exceed" existing levels. In order to adequately assess the noise effect of a proposed project, both criteria must be analyzed.

The proposed Noise Element of the *Trinity County General Plan* (Trinity County Planning Dept. – as of December 2005, not approved) states, regarding roadway noise sources, that "Noise impacts are usually insignificant where the ADT is less than 2000." Policy 4.2.2 requires new transportation sources be mitigated so that noise levels at residential receptors do not exceed 60 dB (24-hour average) at outdoor activity areas. However, the Proposed Project is not considered a new transportation source. The Noise Element does not address temporary construction noise levels. There is no noise ordinance in Trinity County as of January 2006.

While the FHWA noise regulations do not define "approach" or "substantially exceed," all state highway agencies must establish a definition of "approach" that is at least 1 dBA less than the NAC. For this Proposed Project "approach" and "substantially exceed" are defined in accordance with the California Department of Transportation's guidelines: "approach" is within 1 dBA of the NAC; "substantially exceed" is an increase of 12 dBA.

FHWA identified four residential receivers as the only noise-sensitive land uses within the Project Vicinity (refer to Table 17). All receivers are within or close to Segment 2, and no receivers are within Segments 3, 4, or 5. The NAC for residential uses is 67 dBA as established by FHWA Activity Category B.

3.5.2.3 Alternative 1 - No Action

Under Alternative 1, the road would not be reconstructed and there would be no road construction noise. Therefore, no noise effects would result from the No Action alternative.

TABLE 17
Location and Description of Noise-Sensitive Land Uses

Receiver No.	Station	Receiver Description	Distance from Existing Centerline	Distance from Proposed Centerline
R1	Sta. 5+820.000 LT	Residence	40 m (131 ft.)	40 m (131 ft.)
R2	Sta. 8+750.000 RT	Residence	14 m (45 ft.)	15 m (49 ft.)
R3	Sta. 8+773.000 RT	Residence	34 m (113 ft.)	36 m (119 ft.)
R4	Sta. 9+817.000 LT	Residence	22 m (71 ft.)	23 m (75 ft.)

3.5.2.4 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

During the construction phase, noise from construction activities would add to the noise environment in the immediate Project Vicinity and would be most noticeable to residents located along Segment 2. It is difficult to reliably predict construction noise levels as heavy machinery is constantly moving in unpredictable patterns. Noise would also be generated by increased truck traffic on area roadways associated with the transport of materials and equipment. Most construction would occur during the daylight hours when occasional loud noises are more tolerable. No percussive noise producing activities such as blasting or impact pile driving would be conducted at night.

Provisions will be included in the plans and specifications requiring the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour limitations (e.g., no Sunday or holiday work, and limited [no blasting or pile driving] construction activities at night) and ensuring equipment is adequately maintained and muffled. In addition, the affected residents will be notified of any scheduled unusually loud construction activities such as pile driving, blasting, and rock drilling.

Since there are four residences within or near Segment 2, they will be within audible range of equipment noise during the construction phase of Segment 2. In particular, pile driving associated with retaining wall and bridge construction could be an adverse noise effect. However, these potential noise effects will be temporary and short term, and pile driving and blasting will be prohibited at night. These potential noise effects can be partially alleviated by closing doors and windows. This temporary increase in ambient noise levels is not considered to be significant. Mitigation is proposed to reduce the temporary adverse effects associated with construction noise.

Operation Phase

Table 18 presents the predicted peak hour noise levels based on the information provided in the traffic analysis (Table 4).

TABLE 18
Predicted Peak Hour Traffic Noise Levels (dBA)

Receiver No.	Existing (2005)	Construction (2007)		Design Year (2027)	
		Alt 1	Alt 2	Alt 1	Alt 2
R1	46	46	46	46	47
R2	51	51	50	51	51
R3	47	47	46	47	47
R4	49	49	48	49	49

Notes:
Alt 1 is No Action Alternative
Alt 2 is Reconstruction of Existing Alignment Alternative

Table 4 shows a small increase in traffic due to general growth over time, which is expected to occur with or without the Proposed Project. Given the small increase in traffic volume and the very small change in distance between the road and the residences, the maximum increase in noise level is 1 dBA, which is generally considered inaudible. No predicted noise level approaches the NAC of 67 dBA. Therefore, the Proposed Project does not result in a significant exceedance over existing levels nor does it approach the NAC for residential uses. Table 18 shows that the maximum difference between predicted noise levels for Alternatives 1 and 2 is 1 dBA. Such a small difference is considered inaudible. Under Alternative 2, the noise levels would actually decrease by 1 dBA at some receptors in the short term, by increasing the receptors' distance from the realigned road centerline. Thus, there is no adverse noise effect associated with the operational phase of the Proposed Project.

3.5.3 Cumulative Impacts

3.5.3.1 Alternative 1 - No Action

No direct cumulative impacts would occur with Alternative 1.

3.5.3.2 Alternative 2 - Reconstruction of Existing Alignment

Other projects in the area include an improvement of Segment 1 of Hyampom Road by Trinity County, a winery processing and tasting facility in Hyampom, an 8-unit resort at the Hyampom Airport, numerous salvage logging projects, a mine abandonment project, and two bridge construction projects over Hayfork Creek. These projects, in combination with the Proposed Project and with implementation of respective mitigation measures, are not expected to increase noise levels at the identified receivers which are only located within or near Segment 2. The construction of the bridges (in Hayfork) will not be concurrent, and will be out of hearing range of Segment 2. Therefore, there are no cumulative noise effects. The new developments will not generate significant noise, and are not in hearing range of the Proposed Project. Improvement of Segment 1 will have the same or similar effects as the Proposed Project. Because of the sparse housing along the alignment and distance between segments, construction noise would not be combined, even if two segments were constructed simultaneously.

3.5.4 Mitigation Measures

3.5.4.1 Alternative 2 – Reconstruction of Existing Alignment

Construction Phase

The Proposed Project would be required to adhere to the Caltrans or equivalent FHWA standard specifications with respect to construction noise, which would decrease the potential for adverse noise effects. These standard specifications include the following provisions:

- The Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract.
- Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

Provisions will be included in the plans and specifications requiring the contractor to make every reasonable effort to minimize construction noise at the receptors through abatement measures such as work-hour limitations. There will be no night-time work that involves blasting or other percussive construction activities that could affect residents. Other mitigation measures include no work on Sundays and holidays and ensuring equipment is adequately maintained and muffled. In addition, the contractor will notify the affected residents and the project engineer prior to any scheduled use of unusually loud equipment such as pile driving, blasting and rock drills.

In order to reduce the impacts to the NSO the following restrictions will be included in the contract specifications:

Restricted Activity	Distance from NSO Nest	Dates of Restriction
Activities that cause noise above 90 dBA	0.4 km (0.25 mi.)	March 1 to June 30
Nighttime construction (½ hour before sunset to ½ hour after sunrise)	0.8 km (0.5 mi.)	March 1 to July 31
Blasting	1.6 km (1 mi.)	March 1 to September 30

Operation Phase

There are no predicted effects; therefore, no mitigation measures are required.

3.6 Floodplains

A floodplain is the lowland adjacent to a river, lake, or ocean. Floodplains are designated by the rarity of the flood that is large enough to inundate them. For example, a 10-year floodplain is likely to be inundated by a 10-year flood and a 100-year floodplain by a 100-

year flood. Flood frequencies, such as the "100-year flood," are determined for a specific river or stream through a statistical procedure described in Bulletin 17B from the Hydrology Subcommittee, United States Geological Survey (USGS 1982a). A 100-year flood has a 1 percent chance of occurrence in any particular year within a 100-year period.

The intent of EO 11988 for Floodplain Management (40 CFR. 6.302 (a)) is to minimize occupancy of and modifications to floodplains. The objective of this section is to evaluate long- or short-term adverse effects associated with occupancy and modification to the 100-year floodplain along Segments 2 and 3 of Hyampom Road. Although the Proposed Project limits cover Segments 2, 3, 4, and 5, Segments 2 and 3 are the focus of this evaluation since they parallel and are adjacent to Hayfork Creek, and Segments 4 and 5 are well outside the 100-year floodplain. The evaluation includes a discussion of the following items commensurate with the level of risk or environmental effects for each alternative: flooding risks, effects on natural and beneficial floodplain values, support of probable incompatible floodplain development, measures to minimize floodplain effects, and measures to restore and preserve the natural and beneficial floodplain values. In addition, an evaluation of the combined effects of the reconstruction of Segments 2 and 3 on the hydraulic profile of Hayfork Creek were incorporated into this floodplain assessment.

Floodplains are considered important because they provide the following services: 1) floodwater storage and attenuation of downstream flooding; 2) habitat for a variety of wildlife and plant species; 3) water quality improvement through deposition of sediments and other contaminants and natural treatment; and 4) groundwater recharge capacity. Potential effects associated with occupancy of or modification to a floodplain includes increased risk of flooding, loss of species habitat, and reduced water quality.

3.6.1 Hydrology and Encroachment Evaluation

An analysis of streamflow records for Hayfork Creek was completed to estimate the 100-year flood in the Project Vicinity. Table 19 shows the flood flows for Hayfork Creek in Segment 2 and 3, including flows estimated for Little Creek.

TABLE 19
Hayfork Creek Flood Flows (downstream of Little Creek)

Return Period (years)	Flow (cms)[1]	Flow (cfs)[2]
100	1,337	47,200
50	1,125	39,700
25	930	32,800
10	685	24,200
5	500	17,650

1) cms – cubic meters per second
2) cfs – cubic feet per second

The flood profile for the existing alignment through Segments 2 and 3 shows the water surface over the roadway in many areas. Figure 13 shows locations where Hyampom Road is located within the floodplain, creating a floodplain encroachment. In these locations, because the 100-year flood already covers the road, any increases to roadway elevation will cause embankments to encroach further into the floodplain.

Table 20 provides the estimated depth of road overtopping from the 100-year flood along the existing alignment. These data show that the flood water can be between approximately 0.3 m (1.6 ft.) to 3.0 m (9.8 ft.) deep in locations along Segments 2 and 3.

TABLE 20
100-year Flood Depths along Segments 2 and 3 of Existing Alignment of Hyampom Road

KP Station (kilometer post)	100-year Flood Depth	
	(meters)	(feet)
Segment 2		
6.50 to 7.80	1.0 to 3.0	3.3 to 9.8
8.20 to 8.25	<0.5	<1.6
8.50 to 8.70	1.0 to 1.5	3.3 to 5.0
8.90 to 9.70	1.5 to 3.0	5.0 to 9.8
Segment 3		
10.60 to 10.80	0.5 to 1.0	1.6 to 3.3
10.9 to 11.5	1.2 to 2.1	4.0 to 7.0
12.2 to 12.3	0.3 to 0.6	1.0 to 2.0

In most areas of Segment 2 and Segment 3 shown in Figure 13, the floodplain boundary is very near, if not within, the existing road footprint. In the existing encroachment areas shown in Figure 13, the floodplain analysis shows the road footprint (road surface and embankments) is within the 100-year floodplain. Depths of water for the base flood (100-year) above the roadway varied from 0.3 m (1.6 ft.) to 3.0 m (9.8 ft.).

3.6.2 Affected Environment

Most known 100-year floodplains in the United States have been mapped by the Federal Emergency Management Agency's (FEMA) Flood Insurance Administration. According to 1988 and 1994 FEMA Flood Insurance Studies, Segments 2, 3, 4, and 5 of Hyampom Road reside in areas determined to be outside the area where detailed studies have been completed by FEMA (see Panel 600 of 950, Map Number 06105C0600 B, FEMA 1988).

Therefore, this roadway was evaluated (because FEMA studies did not exist) in accordance with FEMA standards for purposes of the Proposed Project. The results of the floodplain hydraulics analysis demonstrated that more than three-fourths of the existing Hyampom roadway along Segments 2 and 3 will have flood waters up to a depth of 3.0 m (10 ft.) or next to the road during the 100-year event, which constitutes a significant encroachment.

3.6.3 Environmental Consequences

3.6.3.1 Alternative 1 - No Action

Current drainage channels and the existing roadway would not be improved under the No Action Alternative. Areas along Segment 2 and Segment 3 that are currently prone to flood damage would continue to be subject to future flooding. Potential flooding could result in

the interruption of access between Hayfork and Hyampom for residential, commercial, and emergency response purposes. Such flooding could also result in damage to existing properties located along Segment 2 and the roadway itself.

3.6.3.2 Alternative 2 - Reconstruct Existing Alignment

Construction and Operation Phase

In order to raise the roadway surface above the 100-year flood level, fill must be placed in the existing floodplain. This will modify the boundary of the floodplain slightly, but will not increase the 100-year flood level by more than the 0.3-m (1.0-ft.) rise threshold as allowed by FEMA standards. The detailed hydraulic analysis (Pacific Hydrologic Incorporated 2004) shows that in one location along Segment 2 the floodplain increases by 0.3 m (1.0 foot) in depth, in all other locations the increase is less. The maximum flood risk impact associated with the reconstruction of Segment 3 is estimated to be approximately 0.15 m (0.5 ft.) at the upstream end of Segment 3 located immediately downstream of Segment 2 (Pacific Hydrologic Incorporated 2005). This hydraulic analysis also concluded that the proposed encroachment in Segment 3 will not propagate upstream into Segment 2; therefore, the combined impacts of reconstruction of Segments 2 and 3 are within the acceptable FEMA limits of increased water surface elevation during the most probable 100-year flood. The proposed roadway would also avoid the inundation of emergency service or emergency evacuation routes. The proposed roadway improvements along Segments 2 and 3 would not constitute a significant encroachment into the 100-year floodplain and would constitute a major improvement for emergency access during storm events.

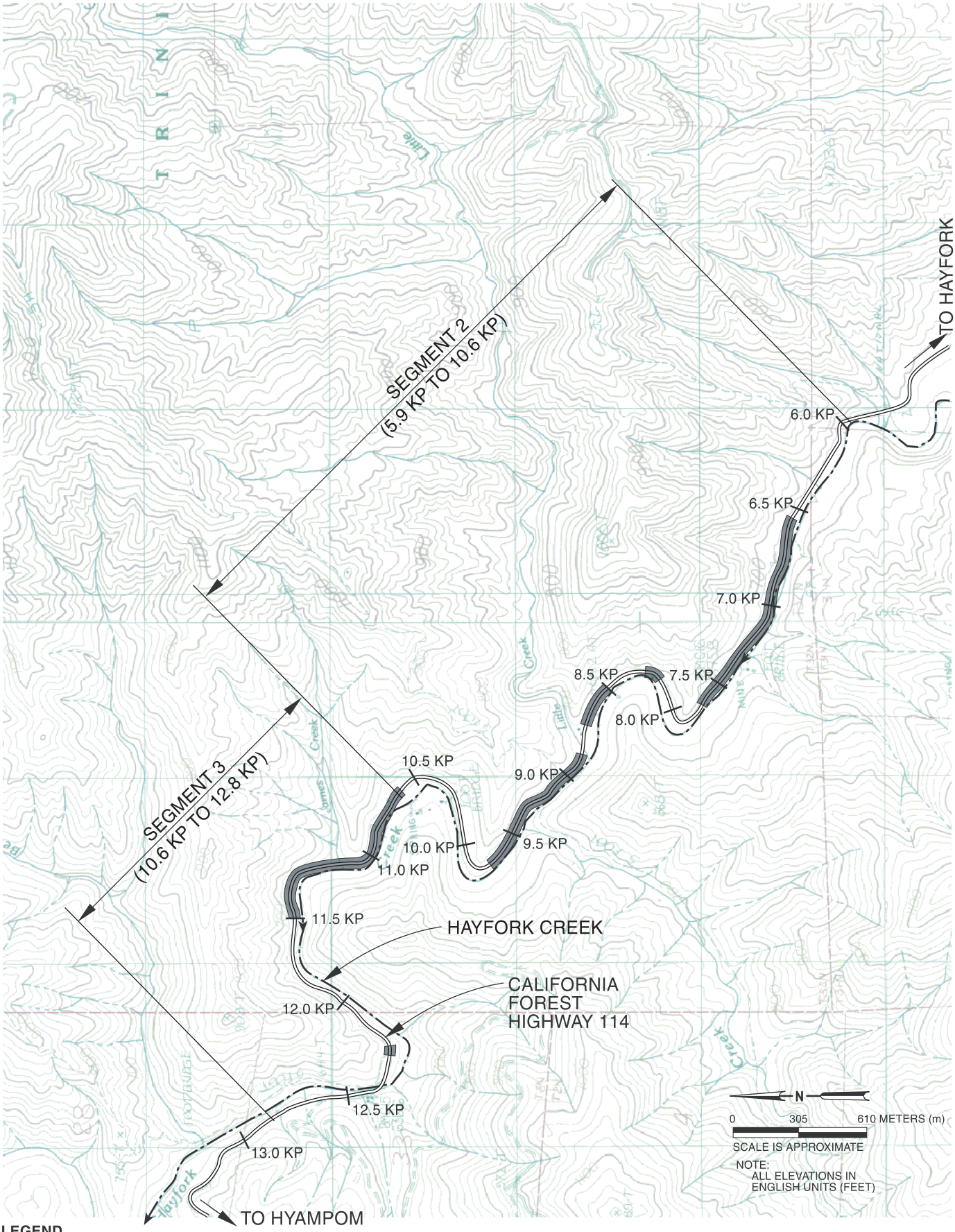
The proposed new, larger, and more numerous culverts will assist flow dispersal below roadway sections to promote more infiltration through spreading of flow over a greater surface area. Raising the road from the floodplain and stabilizing the streambank will reduce erosion. Erosion on hillsides below the road, along the roadway, and in ditches should decrease and thereby result in less sedimentation to Hayfork Creek and wet area locations. Broader dispersal of drainage will mitigate added runoff associated with a wider road surface.

In this manner, the Proposed Project could be viewed as providing a net gain in preserving natural and beneficial floodplain values by stemming erosion of soil and road surface materials into the flood channels, which are the major adverse water quality inputs to the drainage system resulting from the existing roadway.

3.6.4 Cumulative Impacts

3.6.4.1 Alternative 1 - No Action

No cumulative effects would occur with Alternative 1, other than the continued potential risk of flooding of Segments 1, 2, and 3 during storm events.



LEGEND

7.0 KP ROAD STATIONING BASED ON 15% ALIGNMENT (OCT. 02)

AREAS OF POSSIBLE FLOODPLAIN ENCROACHMENT

FIGURE 13
HAYFORK CREEK ENCROACHMENT AREAS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

3.6.4.2 Alternative 2 - Reconstruction of Existing Alignment

Other projects in the area include an improvement of Segment 1 of Hyampom Road by Trinity County and replacement of two bridges over Hayfork Creek in Hayfork. Segment 1 will also raise the roadway profile out of the floodplain, resulting in a similar floodway encroachment. As stated above , Segment 3 will result in a 0.15-m (0.49-ft) rise in base flood elevation and Segment 2 will result in no more than a 0.3-m (1.0-ft.) rise. However, the effects of minor encroachments on the base flood elevation dissipate over short distances and are not cumulative (Pacific Hydrologic Incorporated 2004 and 2005). The new bridges will have greater flood capacity than the previous bridges, which will lower the base flood elevation slightly in Hayfork. However, this effect will dissipate before reaching Segment 2. No structures are at risk from the rise in base flood elevation in any segment. The cumulative effect will be beneficial, as all segments of Hyampom Road and the bridges in Hayfork will be out of the 100-year floodplain. These projects, in combination with the Proposed Project, are not expected to result in significant encroachments to floodplains in the Project Vicinity.

3.6.5 Mitigation Measures

3.6.5.1 Alternative 2 – Reconstruction of Existing Alignment

The Proposed Project will not significantly encroach into the 100-year floodplain; therefore, there will be no adverse effects. No mitigation is proposed.

3.7 Wetlands and Other Waters of the U.S.

This section describes the wetlands and other waters of the United States[5] present in the Proposed Project area and analyzes potential effects to those wetlands and other waters that may result from the proposed reconstruction and operation of Hyampom Road.

Water resources evaluated in this document include: (1) wetlands, as defined by the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA); and (2) waters of the United States, as also defined by the USACE, including rivers, streams, lakes, and other surface waters. Two wetland delineation reports were prepared for the Action Area (Segments 2, 4, and 5 – North State Resources 2003, Segment 3 – May and Associates 2001).

Surface waters, wetlands, and associated channels are sensitive resource areas for the following reasons: (1) They convey floodwaters or, by storing floodwaters, may attenuate downstream flooding risk; (2) they typically provide important native species habitat, including wetland and riparian (streamside) habitats; (3) they provide direct pathways for contamination to reach downstream ecological or human resources, although the presence of wetland or riparian vegetation may provide cleansing of contaminants; and (4) they provide locations for groundwater recharge.

[5]Drainages with a defined bed and bank that convey water but do not support wetlands vegetation, e.g., streams and lakes.

3.7.1 Affected Environment

3.7.1.1 General Setting

Elevations in the Action Area range from approximately 670 to 780 m (2,200 to 2,550 ft.) above sea level. The topography within the Action Area is mountainous. Hyampom Road generally parallels Hayfork Creek where the creek has cut a deep canyon into the southwestern Klamath Mountains. Hayfork Creek drains a large watershed (100,353 ha [247,985 ac.]) that is tributary to the South Fork Trinity River. Numerous perennial and intermittent streams tributary to Hayfork Creek intersect the present and proposed road alignments, often entrenched in steep, narrow ravines.

In Segment 2, the Action Area is adjacent to Hayfork Creek, includes portions of the active channel, and also crosses Little Creek and another unnamed perennial stream. Segment 3 is adjacent to Hayfork Creek for the majority of the alignment, with the existing Hyampom Road crossing Hayfork Creek at Nine-Mile Bridge. Segment 3 also crosses two perennial drainages, James Creek and Jud Creek. Segments 4 and 5 are located downstream of Segments 2 and 3. Segment 4 begins approximately 0.3 km (0.2 mi.) north of Nine-Mile Bridge over Hayfork Creek, and in this southernmost part of Segment 4, the linear Action Area boundary incorporates a small area of Hayfork Creek where the stream banks curve slightly into the Action Area. North of this point, the Action Area is situated upslope and away from Hayfork Creek and no portions of the Action Area for Segments 4 and 5 are within or directly adjacent to Hayfork Creek. In Segments 4 and 5 the roadway crosses eight perennial streams. The Action Area roughly parallels the existing road up the side of the steep canyon slope to an elevation approximately 150 m (500 ft.) above the creek and a maximum horizontal distance of approximately 0.50 km (0.34 mi.) from the creek.

3.7.1.2 Jurisdictional Waters

A routine on-site determination of the presence and extent of wetlands and other waters of the United States was performed in accordance with methodology identified in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). From this determination, a delineation report was prepared to document the presence of jurisdictional waters of the United States, including wetlands, within the Action Area. The delineation for Segment 3 was conducted from April 25 through April 27, 2001, and was verified by the USACE on December 10, 2002 (USACE File No. 27452N). A revised and updated delineation was conducted by TCDOT for Segment 3 from September 23 through October 21, 2005, and was reviewed in the field by the USACE on October 21, 2005 (approved by USACE letter dated December 6, 2005). The delineation for Segments 2, 4, and 5 was conducted between June 4, 2003 and June 12, 2003, and was verified by the USACE on July 14, 2004 (USACE File No. 26733N). The following four wetland habitat types were identified in the Action Area: riparian wetland, seep, seasonal wet meadow, and fresh emergent wetland. The following three other types of waters of the United States were identified in the Action Area: perennial stream, intermittent stream, and roadside ditch. Descriptions of each type of wetland and other waters are provided below. A total of 4.824 ha (11.995 ac.) of jurisdictional waters were identified within the Action Area (Table 21 and Figures 14 and 15).

Segment 4
See Figure 15

Segment 3

Segment 2

Nine Mile Bridge

Postmile 7.36

Postmile 7.3

Hayfork Creek

Perennial Creek

James Creek

Jud Creek

Little Creek

Feature # 25 Omitted

Feature # 20 Omitted

Waters of the United States

- Fresh Emergent Wetland
- Hayfork Creek
- Intermittent Creek
- Perennial Creek
- Riparian Wetland
- Roadside Ditch
- Seasonal Wet Meadow
- Seep

N

0 625 1,250 2,500

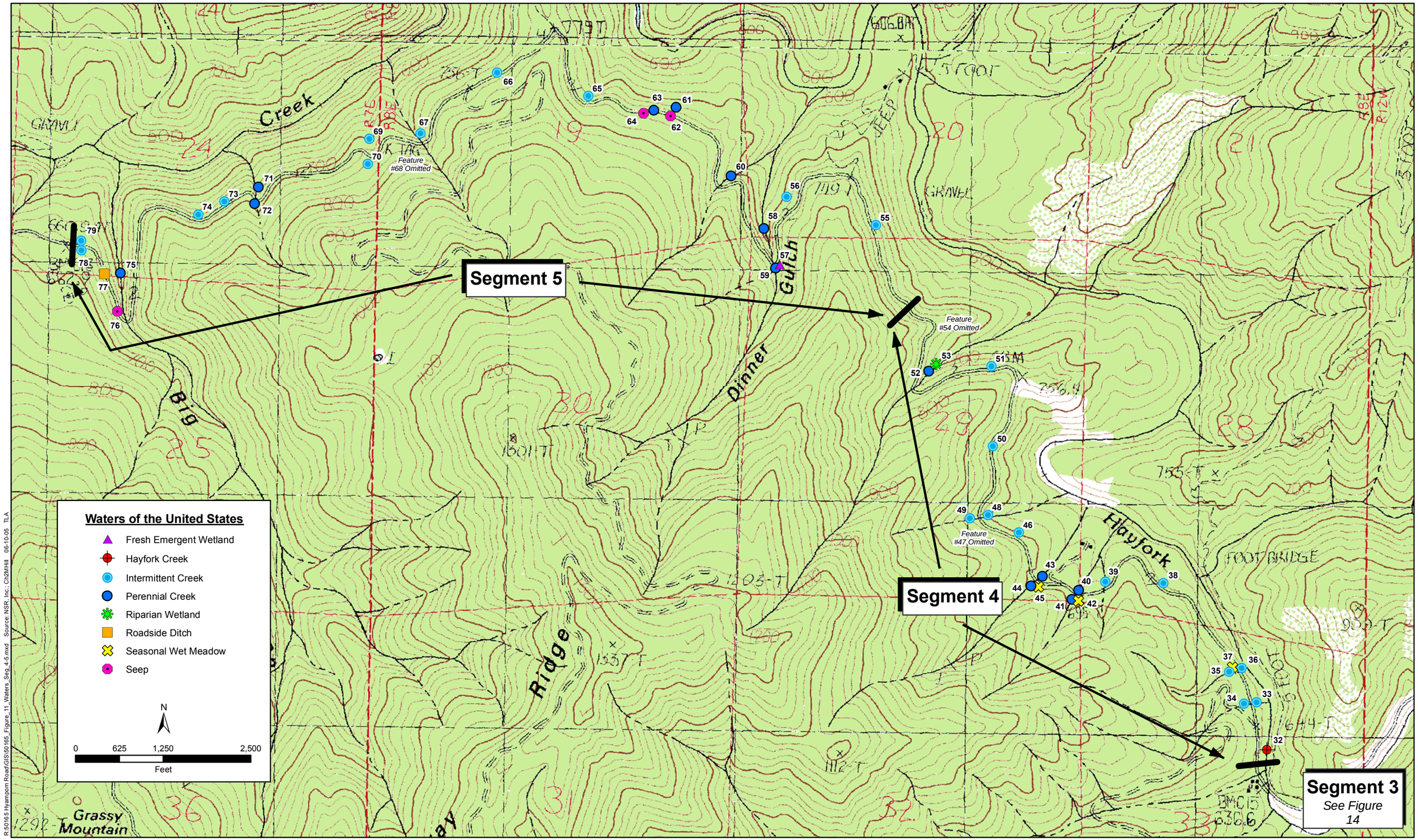
Feet

R:\50165 Hyampom Road\GIS\50165_Figure_10_Waters_Seg_2-3.mxd Source: NSR, Inc.; Ch2MHill 06-10-05 TLA

North State Resources, Inc.

176402.30.E2.04•T022004002SFO•Figure 14•10/11/05•ez

FIGURE 14
LOCATIONS OF WATERS OF THE U.S.
SEGMENTS 2 AND 3
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA



North State Resources, Inc.

176402.30.E2.04•T022004002SFO•Figure 15•10/11/05•ez

FIGURE 15
LOCATIONS OF WATERS OF THE U.S.
SEGMENTS 4 AND 5
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

TABLE 21
Area of Jurisdictional Waters of the United States within the Action Area

Waters of the United States, Including Wetlands (ha/ac.)					
Wetland Type	**Segment 2**	**Segment 3**	**Segment 4**	**Segment 5**	**Total**
Riparian wetland	0.15/0.38	0.00	0.02/0.06	0.00	0.17/0.44
Seep	0.06/0.15	0.01/0.03	0.00	0.02/0.03	0.09/0.21
Fresh emergent wetland	0.00	0.00	0.00	0.00[2]	0.00/0.00
Seasonal wet meadow	0.00	0.00	0.11/0.28	0.00	0.11/0.28
Total	**0.21/0.53**	0.01/0.03	**0.13/0.34**	**0.020/0.03**	**0.37 ha/0.93 ac.**
Other Waters					
Hayfork Creek	0.35/0.91	3.76/9.30	0.01/0.03	0.00	4.12/10.24
Perennial stream	0.02/0.07	0.03/0.07	0.03/0.08	0.11/0.26	0.19/0.50
Intermittent creek	0.01/0.03	0.04/0.10	0.02/0.05	0.03/0.08	0.10/0.26
Roadside ditch[1]	0.01/0.00	0.01/0.03	0.00	0.01/0.03	0.03/0.06
Total	**0.39/1.01**	**3.84/9.50**	**0.06/0.16**	**0.15/0.37**	**4.44 ha/11.04 ac.**
Total Jurisdictional Waters					**4.81 ha/11.97 ac.**

[1]To be considered jurisdictional, roadside ditches must have a connection to waters of the United States.
[2]There are fresh emergent wetlands located in Segment 5, but the area is less than 0.01 ha/0.02 ac.

3.7.1.3 Wetlands

Riparian Wetland

Riparian wetlands occur adjacent to perennial streams within the Action Area. All but one of these features occur adjacent to Hayfork Creek in Segment 2 (Figures 14 and 15), with a total area of 0.17 ha (0.44 ac.). No riparian wetland features were mapped for Segment 3. One small area of riparian wetland occurs adjacent to a perennial tributary of Hayfork Creek in Segment 4, with an area of 0.02 ha (0.06 ac.) (Figure 15). This feature is located in a steep ravine down slope of the present alignment of Hyampom Road. Riparian wetlands are characterized by their landscape position between freshwater ecosystems and upland ecosystems, by the presence of riparian plant communities composed predominantly of hydrophytic vegetation, and by the presence of hydric soils and wetland hydrology indicators.

In each of the riparian wetlands located within the Action Area, the lower-elevation limit of the feature is defined by an ordinary high water mark (the line eroded into the sediments along the upper edge of the flowing water at its "normal" summer-season level) that also demarcates the upper elevation limit of the adjacent perennial stream. For the purposes of the wetland delineation, the flows observed during the early June fieldwork were considered to be "ordinary" summer flows. Wetland hydrologic indicators that provide evidence of flooding are present within these features, including drift lines (linear deposits of leaves, sticks, and other debris deposited at the upper limits of flood waters), debris dams (piles of logs, sticks, and other debris deposited by flood waters), and water marks (lines etched into trees or left on rocks). The upper elevation extent of the riparian wetland habitat was determined by locating such indicators of frequent flooding along perennial streams within the belt of vegetation dominated by riparian plants. "Frequent" flooding occurs regularly enough to be considered normal circumstances and, for the purposes of this delineation, is considered to occur with an average 2-year recurrence interval. Under this definition, riparian wetlands occur relatively close to the stream channel and do not include

areas that flood less frequently; for instance, during 10-year or 100-year flood events. Frequent flooding is also used as an indicator of the presence of hydric soils within wetland features. Other hydric soil indicators present within the mapped riparian wetlands include low chroma matrices, high organic content in the surface layer of sandy soils, and organic streaking in sandy soils. Hydrophytic vegetation is dominant within the montane riparian plant community that occupies the riparian wetland areas. Dominant hydrophytic plant species include white alder *(Alnus rhombifolia)*, arroyo willow (*Salix lasiolepis)*, mugwort *(Artemesia douglasiana)*, and horsetail *(Equisetum arvense)*.

Seep

One 0.06 ha (0.15 ac.) seep occurs in Segment 2, upslope from Hyampom Road (Figure 14). Groundwater emerges from a steep rock outcrop at this location and trickles down the rocky face. The plant community on this surface is dominated by hydrophytes. The wetland boundary was mapped at the transition between the saturated soil/dominant hydrophytes and dry soils/upland vegetation. As water drips from this steep seep, it accumulates into a roadside ditch, where it rapidly infiltrates without a culvert or other drainage conveyance to pass waters beneath the road to Hayfork Creek.

One seep (total area 0.01 ha [0.03 ac]) occurs in Segment 3 (Figure 14) and three small seeps (total area 0.02 ha [0.03 ac.]) occur in Segment 5 (Figure 15). The seeps are very similar to the seep described in Segment 2, except that they are much smaller. They emerge from the road-cut bank and flow either into a roadside ditch to a culvert or else directly into a culvert where their waters flow toward Hayfork Creek. No seeps were observed along Segment 4. Persistent surface moisture from these seeps supports the following hydrophytic vegetation on the bank surfaces and/or in the adjoining ditches: common rush (*Juncus effusus)*, stream orchid, (*Epipactis gigantea)*, Himalayan blackberry (*Rubus discolor)*, and velvet grass (*Holcus lanatus)*. Aquic moisture regimes[6] were evident for soils in the ditches associated with the seeps, as were reducing soil conditions and frequent flooding, sufficient to meet the requirements for hydric soils for wetlands determination.

Fresh Emergent Wetland

No fresh emergent wetlands were observed along Segments 2, 3, and 4. A very small (0.002 ha [0.01 ac.]) area of fresh emergent wetland occurs in Segment 5, on the upslope side of Hyampom Road in a depression adjacent to a perennial stream (Figure 15). This feature occupies a small depression that appears to have been created during past road improvement activities. In contrast to seasonal wet meadow, fresh emergent wetland not only remains saturated, but is also typically inundated during and shortly after the winter rainy season. Hydrophytic vegetation common to fresh emergent wetlands is specially adapted to conduct gas exchanges associated with photosynthesis through their hollow leaves or stems. The fresh emergent wetland plant species observed within this feature include iris-leaved rush *(Juncus xiphioides)*, spike rush *(Eleocharis acicularis)*, toad rush *(Juncus bufonius)*, and piggy-back plant *(Tolmiea menziesii)*. Wetland hydrology indicators present include inundation, saturation of the upper 12 inches of the soil profile, and water marks where the water level has receded from its maximum elevation. Hydric soil indicators

[6] A moisture condition associated with a seasonal reducing environment that is virtually free of dissolved oxygen because the soil is saturated by ground water or by water of the capillary fringe as in soils in aquic suborders and aquic subgroups.

present include evidence of long- and very long-duration ponding and evidence of an aquic moisture regime.

Seasonal Wet Meadow

Three areas of seasonal wet meadow habitat occur in Segment 4, with areas ranging from 0.003 ha (0.01 ac.) to 0.06 ha (0.14 ac.) (Figure 15). No seasonal wet meadows were observed along Segments 2, 3, and 5. Seasonal wet meadow habitat is dominated by hydrophytic vegetation that typically occurs as grasses and forbs. This habitat appears to remain saturated (but not inundated) during the rainy season and for at least 30 days (i.e., long duration) into the growing season. Each seasonal wet meadow area occurs on the upslope side of Hyampom Road and is adjacent to an intermittent or perennial creek that is conveyed through the road base material in a corrugated metal pipe (CMP). In these areas, it appears that during high flows, stream flow ponds behind the culvert inlets, and that periodic recurrence of this condition has created low-slope-gradient deposition zones. Seasonal wet meadow habitat has established itself in these deposition zones where hydrophytic vegetation is dominant, and frequent flooding satisfies both the wetland hydrology and hydric soils parameters for the presence of wetlands. The soils also display sufficient indications of anaerobic conditions (low chroma mottles indicating a reducing environment). Additional wetland hydrology indicators present include watermarks, drift lines, sediment deposits, and oxidized root channels in the upper 12 inches of soil.

Characteristic long-duration saturation during the growing season supports a plant community dominated by species adapted to survive seasonal saturation of soils. The dominant species observed in seasonal wet meadows within the Action Area include common rush (*Juncus effusus)*, rabbit foot grass (*Polypogon interruptus*), velvet grass (*Holcus lanatus*), and buttercup (*Ranunculus canus*).

3.7.1.4 Other Waters of the United States

Waters of the United States present within the Action Area, exclusive of the wetland features described above, include perennial streams, intermittent streams, and roadside ditches. The locations and descriptions of those features are detailed below.

Perennial Stream

A perennial stream is defined as a waterway that conveys flow continuously throughout the year. Flow in northern California perennial streams is almost always supported by groundwater discharge due to the minimal quantities of rainfall runoff available during the summer drought period under the prevailing Mediterranean climate. The primary perennial stream within the Action Area is Hayfork Creek. The proposed Action Area is adjacent to Hayfork Creek for the entire extent of Segments 2 and 3 and the easternmost portion of Segment 4 (Figure 15). In several places, the Action Area overlaps the ordinary high-water mark that defines the upper elevational boundary of the Hayfork Creek channel. As noted in the section on riparian wetlands (above), the ordinary high-water mark is defined by water surface elevation during "normal" summer-season flows, as were occurring during the field delineation period. The Segment 2 Action Area includes part of the active channel of Hayfork Creek in nine separate areas, with a total area of 0.35 ha (0.91 ac.) and a total length of 998 m (3,277 ft.). The Segment 3 Action Area includes an extensive portion of the Hayfork Creek ordinary high water mark, with a total area of 3.76 ha (9.30 ac.) and a total length of 2,403 m (7,884 ft.). There is one portion of the Action Area/channel overlap in Segment 4, with an area of 0.01 ha (0.03 ac.), and a length of 34 m (113 ft.).

A number of perennial streams, which are tributary to Hayfork Creek, intersect the Action Area. Drainage structures such as CMPs and box culverts convey stream flow across the present alignment of Hyampom Road. Two perennial tributaries intersect the Action Area for Segment 2, with a total length of 103 m (339 ft.) (Figure 14). The larger of the two, Little Creek, is a stream with an average width of 3.6 m (12 ft.) within the Action Area. This is the largest tributary to Hayfork Creek within the Action Area; all other tributaries have average widths of 2.7 m (9 ft.) or less, with 0.6- to 0.9-m (2- to 3-ft.) widths predominant. James Creek, with a total length of 54.9 m (180 ft.) and average width of 1.5 m (4.9 ft.), crosses Segment 3 at the eastern end of the segment (Figure 14). Another perennial stream occurs on the other end of Segment 3, Jud Creek, with an average width of 2.7 m (9 ft) and a length in the Action Area of 67 m (220 ft). Three perennial streams cross Segment 4, with a total length of 378 m (1,241 ft.) (Figure 15). Five perennial streams occur in Segment 5 (Figure 15). One of these streams is associated with two seeps on the road-cut bank, originating within the Action Area and flowing toward Hayfork Creek. No well-developed channel is apparent on topographic maps down slope of this feature, and surface flow may not extend beyond the Action Area. The other four perennial streams in Segment 5 have deeply entrenched channels and continuous surface flow to Hayfork Creek. The total length of perennial streams in Segment 5 is 1,045 m (3,429 ft.). The overall length of perennial streams exclusive of Hayfork Creek within the Action Area is 1,648 m (5,409 ft.). Including Hayfork Creek, 5,039 linear m (16,510 ft.) of perennial streams occur within the Action Area, with an approximate surface area of 4.31 ha (10.74 ac.).

Intermittent Stream

An intermittent stream is defined as a waterway that conveys flow during certain times of the year. The flow may originate as surface runoff and/or groundwater discharge. During dry periods, no stream flow occurs in the channel. In order to qualify as jurisdictional waters of the United States, these channels must display evidence of deposition and scour such as bed and bank morphology, ordinary high water marks, drift lines, or debris dams. Several intermittent streams occur within the Action Area. All of these channels experience generally continuous periods of no surface flow from late spring/early summer through fall. The majority of these features traverse the Action Area en route to Hayfork Creek or one of its perennial tributaries. Several, however, appear to originate at or near the margins of the present road alignment. Intermittent streams occur in each of the Action Area segments (Figures 14 and 15), with average widths in the range of 0.3 to 0.9 m (1 to 2 ft.). Six intermittent streams occur in Segment 2, three occur in Segment 3, eight occur in Segment 4, and nine occur in Segment 5.

Roadside Ditch

Roadside ditches convey water from road surfaces, road-cut banks, and channels which intersect road alignments, typically toward drainage structures or natural drainage relief features, in order to alleviate roadway inundation and/or saturation. In order to qualify as jurisdictional waters of the United States, roadside ditches must exhibit evidence of scour and deposition as described above for intermittent streams and must flow from or intercept naturally occurring waters of the United States. This last criterion excludes ditches which serve only to relieve runoff resulting from precipitation directly onto a road surface or cut bank. Jurisdictional roadside ditches occur in three segments of the Action Area, with average widths of 0.3 to 0.6 m (1 to 2 ft.). Segment 2 has one jurisdictional ditch section,

Segments 3 and 5 each have one jurisdictional ditch, and Segment 4 has none (See Figures 14 and 15).

3.7.2 Regulatory Framework

The USACE regulates discharge of dredge and fill material into waters of the United States (including wetlands) under Section 404 of the Clean Water Act. Waters of the United States are defined to include: (1) all tidal waters; (2) all interstate waters and wetlands; (3) all waters such as lakes, rivers, streams (perennial and intermittent), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate commerce; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) territorial seas; and (7) all wetlands adjacent to water mentioned above (33 CFR Part 328.3[a][1]-[8]).

Wetlands are defined as areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas," (40 CFR 230.3[u] and 33 CFR 238.3[b]). Any actions that involve the placement of material into jurisdictional waters and wetlands, including such activities as sidecasting of material during excavation or temporary embankments to provide equipment access during construction, must comply with Section 404 of the Clean Water Act.

3.7.3 Environmental Consequences

3.7.3.1 Alternative 1 - No Action

There would be no effect on jurisdictional waters if no action was taken.

3.7.3.2 Alternative 2 - Reconstruction of Existing Alignment

Potential direct and indirect effects to jurisdictional waters that may result from the construction and operation of the proposed reconstruction of Hyampom Road are discussed below based on the proposed cut and fill limits within the Proposed Project construction limits. Table 22 summarizes the areas of permanent effects on waters of the United States based on the extent of earthwork displayed on the 30 percent design engineering drawings for the Proposed Project (CH2M HILL 2004a).

Permanent effects to jurisdictional waters associated with the Action Area would result from the direct placement of material into jurisdictional water features, including bridge piers or abutments and rock slope protection along improved roadway segments adjacent to Hayfork Creek for Segments 2 and 3. For this evaluation, any unmitigated destruction of wetlands or other waters of the United States is considered an adverse effect.

Temporary effects to jurisdictional waters may also result from the reconstruction of Hyampom Road, specifically within areas that are only subject to construction access and staging activities. Indirect effects to jurisdictional waters may also occur during the construction stage. Indirect effects include the potential for the release of sediments into jurisdictional features due to erosion of soils disturbed as a result of construction, as well as the potential for accidental release of oils, gas, and solvents into jurisdictional waters.

TABLE 22
Permanent Effects to Jurisdictional Waters of the United States

Waters of the United States, Including Wetlands (ha/ac.)					
Wetland Type	**Segment 2**	**Segment 3**	**Segment 4**	**Segment 5**	**Total**
Riparian wetland	0.002/0.005	--	0.002/0.006	--	0.004/0.01
Seep	0.06/0.15	0.014/0.03	--	0.008/0.02	0.082/0.20
Fresh emergent wetland	--	--	--	--	--
Seasonal wet meadow	--	--	0.01/0.03	--	0.01/0.03
Total	**0.062/0.155**	**0.014/0.03**	**0.012/0.036**	**0.008/0.02**	**0.096/0.24**
Other Waters					
Hayfork Creek	0.004/0.01	0.085/0.21	--	--	0.089/0.21
Perennial stream	0.0025/0.0061	--	0.0132/0.0326	0.0626/0.1547	0.08/0.19
Intermittent creek	0.0023/0.0056	--	0.0023/0.0057	0.0074/0.0182	0.01/0.029
Roadside ditch	0.005/0.017	0.009/0.02	--	0.01/0.02	0.024/0.057
Total	**0.014/0.039**	**0.108/0.26**	**0.0155/0.0383**	**0.08/0.193**	**0.204/0.50**
Total Jurisdictional Waters					**0.30/0.74**

Construction Phase

Permanent Loss of Jurisdictional Waters

Construction activities associated with widening, straightening, and realignment of Hyampom Road; excavation of road-cut banks; and the extension of bridge support structures, retaining walls and roadfill slopes, as defined by cut and fill limits of proposed earthwork, would result in the direct discharge of permanent material into wetlands and features designated as other waters of the United States (Table 22). The permanent loss of jurisdictional waters includes 0.096 ha (0.24 ac.) of wetlands and 0.204 ha (0.50 ac.) of other waters of the United States. Placement of rock slope protection along Segment 3 will result in the discharge of fill into 0.108 ha (0.26 ac.) of other waters of the United States including Hayfork Creek. In areas where the road alignment will shift to a new location, existing culverts will be removed and drainages restored to a more natural condition. Added culverts will return natural drainages to their drainage of origin, rather than conveying them along roadside ditches. While this will remove some roadside ditches from USACE jurisdiction, it will have a beneficial effect on natural hydrology.

Temporary Effects to Jurisdictional Waters

Activities related to the reconstruction of the existing alignment will result in soil disturbance and localized, temporary loss of vegetation. Specifically, at stream/drainage crossings, construction activities (including access and installation of new culverts and roadway) may result in disturbed areas that would be susceptible to the effects of erosion. Locally, sediments and organic materials may be mobilized within, or in the vicinity of, stream channels, due to the change in normal seasonal flow range. Effects from stream-crossing construction would be temporary and would cease once the Proposed Project was completed. For Segment 3, construction of the bridge widening over Hayfork Creek would result in temporary effects due to construction. There will be effects on the creek and riparian areas due to access necessary for bridge widening. Other temporary effects may

occur on James Creek, Jud Creek and Little Creek due to bridge replacement (Little Creek) and culvert removal, although there will be no permanent effects as abutments will be out of Ordinary High Water.

Indirect Effects to Jurisdictional Waters

Erosion and Sedimentation – Surface Erosion

Activities related to the reconstruction of the existing alignment, including cuts and fills, will result in the localized loss of vegetation and general disturbance to the soil associated with both construction access and earthwork activities to support construction of the proposed improvements, including new bridges and culvert installations. Removal of vegetation and soil can accelerate erosion processes within the Action Area and increase the potential for sediment to enter Hayfork Creek, its tributaries, and other adjacent aquatic features. Sedimentation of in-stream gravels could significantly change the composition of aquatic invertebrate populations and/or reduce invertebrate biomass. Sedimentation of fines (small particles of silt and clay) in cobble and gravel substrates would also reduce the amount of interstitial spacing between bed materials that provide a source of cover for fry and juvenile salmonids.

Accidental Spills

Construction activities typically include the refueling of construction equipment on location. As a result, minor fuel and oil spills may occur, with a risk of larger releases. Without rapid containment and clean-up, these materials could be potentially toxic, depending on the location of the spill in proximity to surface water features, including Hayfork Creek, its tributaries, and other adjacent surface water features. Oils, fuels, and other contaminants could have deleterious effects on all wildlife species that may be within close proximity to construction activities.

Operation Phase

Once the wetland mitigation plan is implemented, the operation of the reconstructed Hyampom Road is not expected to cause an effect to jurisdictional wetlands.

3.7.4 Cumulative Impacts

3.7.4.1 Alternative 1 – No Action

There would be no effect on jurisdictional wetlands if no action was taken.

3.7.4.2 Alternative 2 – Reconstruction of Existing Alignment

A cumulative effect to jurisdictional waters would be considered an adverse effect if the incremental loss of jurisdictional waters as a result of the Proposed Project would result in the net loss of jurisdictional waters. Since there will be no net loss of wetland acreage or functions following implementation of the proposed mitigation measures for this Proposed Project, and wetland impacts will be mitigated for Trinity County's project on Segment 1, the salvage and logging projects, the mine reclamation project, and the two bridge replacement projects over Hayfork Creek in Hayfork, cumulative effects on jurisdictional wetlands within the Hyampom area of the Hayfork Creek watershed are not expected to occur.

3.7.5 Mitigation Measures

3.7.5.1 Alternative 2 – Reconstruction of Existing Alignment

Design Phase

Avoidance of Impacts to Jurisdictional Waters

Throughout the preliminary design phase, FHWA and the County have refined the Proposed Project limits to avoid discharge of fill into jurisdictional waters to the maximum extent practicable. As part of the final design, FHWA and the County will continue to explore options for modifying the Proposed Project impact boundaries to further reduce impacts to jurisdictional waters.

Construction Phase

Minimization of Effects to Jurisdictional Waters

Section 404 permits under the Clean Water Act will be required prior to construction. The following mitigation would be implemented at the Proposed Project site during construction activities to avoid and minimize direct effects to jurisdictional waters:

- Conduct activities across drainage features during the dry season (May 1 to October 31).
- Where possible, minimize long-term impacts on woody riparian vegetation by trimming trees and shrubs rather than removing entire woody plants or by cutting trees or shrubs at least 0.3 m (1 ft.) above ground level to leave root systems intact and allow more rapid regeneration following construction.
- Place silt fences or other erosion and sediment control devices at the toe of the constructed embankments to prevent sediment disturbed during ground-disturbing activities from being transported and deposited outside of the construction zone.
- Locate waste sites such that they do not drain directly into wetland features, to the fullest extent possible. If a waste site drains into a wetland feature, sediment basins or other erosion and sediment control devices would be constructed to intercept sediment before it reaches the wetland feature. Waste sites would be flattened and mulched to reduce the potential for erosion.
- Store equipment and materials away from all wetland features. Maintenance and fueling will be conducted in an area at least 7.6 m (25 ft.) away from waters of the United States, including Hayfork Creek, and fueling activities from permanent stations will be conducted within a containment area; otherwise, fueling will be conducted from fuel trucks on road surfaces (e.g. in steep areas along Segments 4 and 5).

Erosion and Sedimentation Control

During construction of the Proposed Project, erosion control measures (i.e., hydroseeding) will be implemented in non-riparian upland areas.

Erosion control work will consist of application of erosion control materials within non-riparian upland areas and approach fills, embankment slopes, excavation slopes, and other areas disturbed by grading. These materials will consist of fiber, native grass and forb seed, commercial fertilizer, and water. Additional erosion control measures that will be implemented include:

- An Erosion and Sediment Control plan will be prepared and included in the final construction plans.
- Any construction activities proposed within the ordinary high water line of a water of the United States, excluding passive vegetation removal activities above ground level (no soil disturbance), will be restricted exclusively to the dry season (May 1 to October 31) or will be separated from the water of the United States by a cofferdam or other appropriate control measure.
- Ground-disturbing activities will be restricted to the dry season, which is defined as May 1 to October 31. Ground-disturbing activities may occur outside the defined dry season based on a forecast of dry weather and permission from National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries). Permission may be granted by email. Ground disturbing activities will not take place when the ground is saturated.
- Temporary erosion and sediment control structures must be in place and operational at the end of each construction day and maintained until disturbed ground surfaces have been successfully revegetated.
- Erosion control (i.e., hydroseeding, geofabrics, and mulch) will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. Soils will not be left exposed during the rainy season.
- Silt fences and/or sediment basins or other erosion and sediment control devices will be placed below all construction activities between the construction area and Hayfork Creek and all perennial and intermittent streams to intercept sediment before it reaches the waterway. These structures will be installed prior to any clearing or grading activities.
- After construction is complete, waste sites will be graded and vegetated to reduce the potential for erosion.
- Sediment control measures will be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until the disturbed areas have been revegetated in accordance with National Pollutant Discharge Elimination System (NPDES) permit conditions.

Accidental Spills

Construction specifications will include the following measures to reduce potential effects associated with accidental spills of pollutants (i.e., fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the Action Area:

- Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 7.6 m (25 ft.) away from waters of the United States, including Hayfork Creek, and will be conducted within a containment area.

- Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.

Operation Phase

Replacement of Filled Jurisdictional Waters

A conceptual Wetlands Mitigation and Monitoring Plan (WMMP) will be prepared and provided to the USACE for review and approval as part of the permit process. The WMMP would identify mitigation areas that are available and capable of maintaining self-sustained wetland hydrology and supporting hydrophytes without irrigation once established. It would identify varieties of plants to be established and the monitoring parameters and performance criteria for each parameter. Typical performance criteria may include:

- The target number of hydrophytic plant species to be established in the mitigation area will be the average number of obligate, facultative wetland, and facultative species[7] that occur in adjacent reference wetlands. Reference wetlands will be identified in consultation with the USACE.
- The percent cover of obligate, facultative wetland, and facultative species within the mitigation area will not be less than 80 percent of the average percent cover occurring in the reference wetlands.
- Water depths, periods of inundation, and soil saturation in the mitigation area will be similar to conditions occurring in the reference wetlands.
- If the performance criteria are not satisfied by the end of the third spring following construction of the mitigation area, remediation measures will be identified and implemented. The monitoring program would, at a minimum, consist of the filing of an annual report to the USACE for 3 years. The mitigation would be considered successful when criteria are met for 3 consecutive years. USFS would maintain the mitigation site after the mitigation is successful.

3.8 Water Resources

This section evaluates project-related and cumulative effects of the Proposed Project on aquatic resources of the Project Vicinity. It considers these effects primarily in the context of two pieces of federal legislation: the CWA of 1972 (as amended in 1977), and the Endangered Species Act of 1973. Water quality thresholds referenced in this document include the Total Maximum Daily Loads (TMDL) for sediment within Hayfork Creek and the South Fork Trinity River (USEPA 1998), and the Basin Plan for the North Coast region (NCRWQCB 1994).

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[7] Facultative Plant - Those plants defined as having an estimated probability of occurring in a wetlands 33 to 67 percent of the time. Examples in project area include the big leaf and vine maple, Pacific dogwood, California blackberry.

Facultative Wetland Plant - Those plants defined as having an estimated probability of occurring in a wetlands > 67 percent to 99 percent of the time. Examples in project area include the white alder, willow, black cottonwood.

Obligate Wetland Plants - Those plants defined as having an estimated probability of occurring in a wetlands > 99 percent of the time. Examples in project area include the cattail and spike rush.

Water resources within the Hyampom Road Project Vicinity provide multiple values to both wildlife and human inhabitants of the Hayfork Valley and, on a larger scale, the South Fork of the Trinity River. Wetlands and other sensitive aquatic and semi-aquatic habitats are dependent upon suitable water quality, as are numerous aquatic species associated with these habitats. Agricultural, municipal, and recreational water users are also dependent upon adequate water quality within the surface and groundwater resources found within the Project Vicinity.

3.8.1 Regulatory Framework

Federal and state agencies have jurisdiction over specific activities conducted in and near stream channels, wetlands, and other water bodies. The federal government supports a policy of minimizing "the destruction, loss or degradation of wetlands" (USEPA 1977). The USACE and the USEPA regulate the placement of dredged and fill material into waters of the United States, including wetlands, under Section 404 of the CWA. Stream channels are not considered wetlands but do fall under USACE and USEPA jurisdiction under Section 404 of the CWA as "other" waters of the United States. For all work subject to a 404 permit, a certification must be obtained from the Regional Water Quality Control Board (RWQCB) stating that the project would comply with applicable water quality regulations. The USEPA recently listed the South Fork Trinity River and Hayfork Creek as sediment and temperature impaired and in need of management (USEPA 1998). The Proposed Project will disturb more than 1 acre of ground, and will require an National Pollution Discharge and Elimination System (NPDES) permit for stormwater associated with construction activity, through the State Water Resources Control Board's General Stormwater Permit Program. This program will require preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).

3.8.2 Affected Environment

3.8.2.1 Regional Setting

The Project Vicinity is located within the watershed of Hayfork Creek, the largest tributary to the South Fork Trinity River; itself the largest tributary to the Klamath River. Hayfork Creek originates at Hayfork Summit and Hoossimbim Mountain, east of Hayfork, and flows westerly through the Hayfork Valley and Hyampom Gorge to its confluence with the South Fork Trinity River at Hyampom (Figure 16). Hayfork Creek drains an area of approximately 1,000 km^2 (386 $mi.^2$) (USDA 1996).

The Hayfork Creek watershed has been divided into three landscape assessment areas for planning purposes. These are the upper-, middle-, and lower-Hayfork Creek watersheds. The upper-Hayfork Creek watershed drains an approximately 240 km^2 (93 $mi.^2$) area encompassing the headwaters of Hayfork Creek to the Carr Creek-Hayfork Creek confluence, 6 km (3.7 mi.) east of the town of Hayfork (USDA 1996). The middle-Hayfork Creek watershed drains an approximately 322 km^2 (124 $mi.^2$) area from the Carr Creek confluence to 0.5 km (0.3 mi.) east of the Hayfork Creek-Little Creek confluence, 5 km (3.1 mi.) northwest of the town of Hayfork (URS 2000). The lower-Hayfork Creek watershed area is 197 km^2 (76 $mi.^2$) in size, extending from near Little Creek to the Hayfork Creek – South Fork Trinity River confluence at Hyampom (USDA 1996). The balance of the Hayfork Creek watershed area (240 km^2/93 $mi.^2$) comprises the basins of Salt Creek (147 km^2/57

mi.^{2}) and Corral Creek (94 km^2/36 mi.^{2}) (D. Garrison, pers. comm.), tributaries to Hayfork Creek within the middle- and lower-Hayfork Creek watershed assessment areas, respectively.

Proposed Project Segments 3, 4, and 5, and a very small area of Segment 2, are located within the lower-Hayfork Creek watershed area. Most of Segment 2 is located within the middle-Hayfork Creek watershed area.

Several tributaries join Hayfork Creek within the Project Vicinity, with most of these consisting of smaller, spring-fed, and largely unnamed drainages located on the south side of Hyampom Road in Segments 4 and 5 (Figure 16). One fairly large perennial[8] stream, called Little Creek, is located in Segment 2 at KP 8.8 (MP 5.5), and is the largest tributary to Hayfork Creek in the Project Vicinity. James Creek is a perennial tributary to Hayfork Creek (D. Garrison 2003) located at the eastern origin of Segment 3. The Nine-Mile Bridge crossing of Hayfork Creek is located approximately 100 m (300 ft.) south of the terminus of Segment 3 and the origin of Segment 4. Jud Creek, a perennial tributary to Hayfork Creek, passes beneath Hyampom Road via a culvert located just northwest of the Nine-Mile Bridge in Segment 3.

Flows within Hayfork Creek are perennial. URS (2000) noted that daily flows within Hayfork Creek (United states Geological Survey [USGS] Station 11528400) between 1957 and 1965 (most recent data) ranged from lows of 0.05 cms (1.8 cfs) to highs of 154 cms (5,430 cfs).

The climate of the Hayfork Valley is Mediterranean-like, with hot summers and wet winters. Annual precipitation within this region of California ranges from 102 cm (40 in.) in the Hayfork Valley to 178 cm (70 in.) in the higher elevations of the mountains surrounding the valley. Most of this precipitation falls as rain below an elevation of 1,200 m (4,000 ft.), and as snow above this elevation.

The geology of the Project Vicinity is varied, and several geologic formations found within the watershed are exceptionally prone to mass wasting processes (land slides, slumps, slope failures, etc.). The combination of heavy precipitation, steep slopes, unstable geology, and fire history contributes to highly unstable landscapes and exceptionally intense flooding within the watershed.

3.8.2.2 Water Crossings

Fifty-one water crossings occur in the Project Vicinity. These include 15 culverts and the roadway bridge crossing of Little Creek in Segment 2, 7 culverts and the Nine-Mile Bridge crossing of Hayfork Creek in Segment 3, 7 culverts in Segment 4, and 20 culverts in Segment 5 (CH2M HILL 2003c). Most culverts surveyed were found to be in poor condition; either collapsed or blocked with debris (TCDOT 2001c). All 51 existing water crossings were characterized and evaluated for their physical ability to pass fish. Most culverts in Segments 2 and 3 would be inundated by flood events, and would therefore not be used by fish

8 “Perennial” drainages retain surface flow for the entirety of the year. They are typically spring or snowmelt fed.

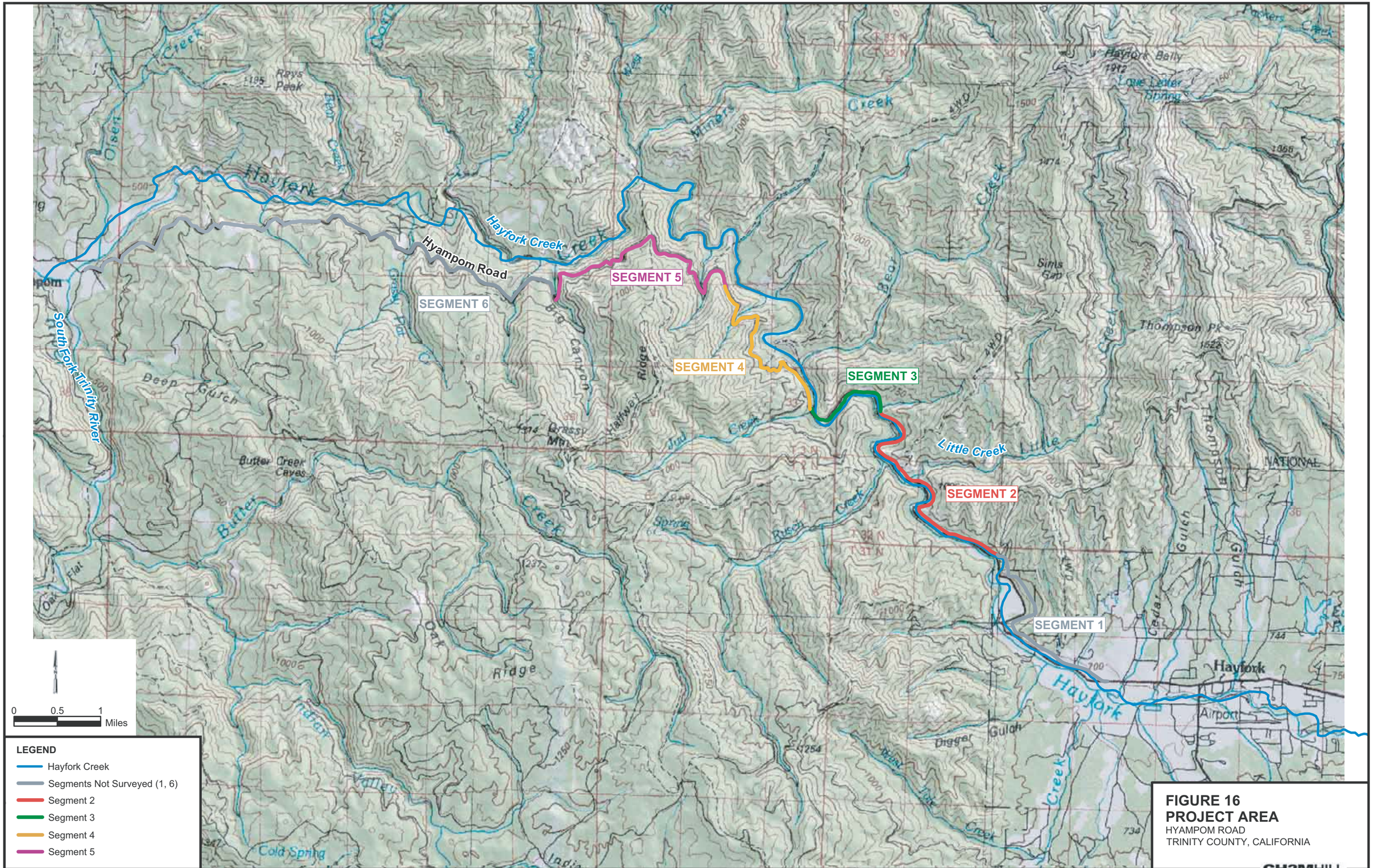

FIGURE 16
PROJECT AREA
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

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during high flow events[9]. The Jud Creek culvert crossing in Segment 3 did not meet NOAA Fisheries fish passage criteria (RTA 2002). James Creek in Segment 3 was determined by RTA (2002) to be non fish-bearing. It is unlikely that fish would migrate up the very steep canyon sides of Hayfork Valley in Segments 4 and 5 and cross Hyampom Road at most culvert locations. With the exception of one culvert, most culverts within Segments 4 and 5 are unlikely to pass fish due to topography rather than inadequate culvert design. Eleven crossings within Segments 2, 4, and 5 were modeled to see if they were properly sized to pass the 100-year flood flow, and five of these were found to be undersized (CH2M HILL 2002, Pacific Hydrologic Inc. 2004). The Jud Creek culvert crossing was found to be undersized to pass the 100-year flow (RTA 2002).

As discussed under the Floodplains section, a hydrologic analysis reported that most of Hyampom Road in Segments 2 and 3 would be inundated by the 100-year flood, estimated at 1,337 cms (47,200 cfs) (CH2M HILL 2002). The floodplain analysis indicated that water depths in the 100-year flood would overtop Hyampom Road in Segment 2 and Segment 3 by up to 3 m (10 ft.) in some locations. Section 3.6.1 of this EA provides a more detailed discussion of the hydrology and encroachment evaluation for Hayfork Creek along Segments 2 and 3.

3.8.2.3 Surface Water Quality

Existing beneficial uses of Hayfork Creek (specifically, the Hayfork Valley Hydrologic Subarea of the Trinity River Hydrologic Unit), as listed in the Basin Plan (NCRWQCB 1994), include: municipal; agricultural; industrial service supply; industrial process supply; groundwater recharge; freshwater replenishment; contact and non-contact recreation; commercial and sport fishing; cold freshwater habitat; wildlife habitat; rare, threatened, or endangered species; migration of aquatic organisms; and spawning, reproduction, and/or early development of aquatic organisms. Water quality requirements are intended to protect these beneficial uses.

Under Section 303(d) of the 1972 CWA, states, territories, and authorized tribes are required to develop a list of impaired water quality segments of water courses or water bodies that do not meet water quality standards. The law requires that these jurisdictions establish priority rankings for water courses and water bodies on the lists and develop action plans (TMDL) to improve water quality (SWRCB 2003). Land uses within the Hayfork Creek watershed and natural wasting processes have adversely affected the water quality of Hayfork Creek and the South Fork Trinity River (USDA 1996; URS 2000), both of which were listed by the USEPA in 1998 as temperature and sediment impaired (USEPA 1998).

3.8.2.4 Sediment and Temperature

Sediment impairment of the South Fork Trinity River watershed is due largely to natural mass wasting processes (land slides, slumps, slope failures, etc.), timber harvesting, and road construction, while temperature impairment is due primarily to riparian vegetation removal, water diversions, and similar habitat and hydrology modifications. The Project Vicinity is located in the Hayfork Creek sub-basin.

[9] For culverts to pass fish effectively, they must not be dry or inundated. NOAA Fisheries has specific culvert design and placement criteria, but a general rule is that the depth of culvert water should be approximately a quarter to a half of the height of the culvert.

The South Fork Trinity River and its sub-basins were first added to the 303(d) list for sediment impairment in 1992, and for temperature impairment in 1998 (SWRCB 2003). A sediment TMDL was prepared by the USEPA in December 1998 (USEPA 1998). As of the date of this document, a temperature TMDL had not yet been prepared for the South Fork Trinity River-Hayfork Creek sub-basin.

Historic sources of sediment to the Hayfork Creek watershed are summarized in Table 23. From 1944 to 1990, natural processes (mass wasting events such as landslides and slumps at areas of unstable geology) and human activities (e.g., road construction, timber harvesting) each contributed similar sediment loads to the watershed (USEPA 1998). The USFS has for the last 3 years monitored the relationship between sediment and flow in Hayfork Creek (Fitzgerald 2003), but these data were not available for inclusion at the time this document was written.

TABLE 23
Hayfork Creek Sediment Delivery, 1944-1990 [1]

Source	Delivery	
	Metric(Short) Tons/ yr	Metric (Short) Tons/mi^2/yr
Management-Related [2]		
Harvest - Mass wasting	1,019 (1,123)	2.7 (3)
Harvest - Surface erosion	3,098 (3,415)	8 (9)
Roads - Mass wasting	758 (836)	1.8 (2)
Roads - Surface erosion	19,160 (21,120)	50 (55)
Roads - Washouts, gullies, small slides	13,317 (14,680)	34 (38)
Cumulative/Other - Mass wasting and bank erosion[3]	27,626 (30,453)	71 (79)
Management Subtotal	**64,978 (71,647)**	**168 (185)**
Non-Management-Related		
Mass wasting	5,662 (6,242)	14 (16)
Surface Erosion [4]	5,273 (5,813)	13 (15)
Bank Erosion [5]	51,003 (56,221)	131 (145)
Non-Management Subtotal	**61,938 (68,296)**	**158 (176)**
TOTAL DELIVERY	**126,916 (139,942)**	**326 (361)**

[1] Source: USEPA (1998)
[2] Mining and agricultural operations are not considered significant sources of sediment delivery during the period 1944 to 1990, and sedimentation volumes due to these activities are not quantified in the TMDL (USEPA 1998).
[3] Streambank erosion is the primary source of sediment within this category. USEPA (1998) notes, however, that bank erosion estimates cannot be accurately attributed to management or non-management sources.
[4] Grasslands, fire, chaparral
[5] Bank erosion is probably overestimated relative to other estimates.

3.8.2.5 Groundwater Quality

Information specific to groundwater quality within Segments 2, 4, and 5 of the Project Vicinity was not available during preparation of this document. Trinity County (2003b) reported that there are no known major aquifers in the Segment 3 area, further noting that

domestic use groundwater is extracted within the alluvium deposits of Hayfork and Hyampom valleys. Groundwater withdrawals from the South Fork Trinity River Basin (includes Hayfork Creek sub-basin) totaled approximately 6.6 million m^3 (5,000 acre-feet [AF]) in 1990 (Trinity County 2003b, citing USFWS et al. 2000).

3.8.3 Environmental Consequences

3.8.3.1 Alternative 1 - No Action

Current drainage channels and the existing roadway would not be improved under the No Action Alternative. Many of the existing culverts would remain undersized and in poor condition, that is, collapsed or otherwise blocked with debris. In these locations, surface waters will continue to flow around culverts and create erosion rills and gullies on soil slopes and roadbed materials. Continued roadway and soil erosion, along with sediment flow from these undersized and failed culverts or swales without culverts, will continue to pose significant sedimentation effects to Hayfork Creek and its tributaries, particularly in Segments 4 and 5.

In addition, roadway inundation of Segments 2 and 3 during flood events will continue to wash pollutants from Hyampom Road into Hayfork Creek. The 100-year event could inundate portions of Segments 2 and 3 with up to 3 m (10 ft.) of water under this alternative.

3.8.3.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

Water resources of the Project Vicinity may be affected during project construction due to sediment. However, completion of the Proposed Project should reduce sedimentation and erosion in the long term relative to the existing condition by stabilizing eroding embankments and the roadbed of Hyampom Road. Implementing Best Management Practices (BMP) during project construction will serve to avoid and reduce adverse direct effects to acceptable levels. The Proposed Project is unlikely to substantially affect (i.e., increase) water temperature within Hayfork Creek or its tributaries due to the existing lack of riparian vegetation. Vegetation clearing around existing culvert crossings and drainages to replace culverts and facilitate roadway and bridge widening, as well as bank stabilization activities may, however, result in elevated water temperatures within these drainages until such time that vegetation reestablishes. Minimizing vegetation removal together with revegetating cleared areas immediately following work in the area will mitigate these short-term effects.

Water drafting from Hayfork Creek to use in water trucks for the control of fugitive dust during construction may affect, but is not likely to adversely affect fish resources. Implementing NOAA Fisheries and California Department of Fish and Game (CDFG) guidelines and practices will serve to avoid and minimize these potential effects.

Operation Phase

One of the objectives of the Proposed Project is to improve the four roadway segments by reducing slope and roadbed failures, and by elevating the roadway within Segments 2 and 3 above the 100-year floodplain. Reconstruction of the roadway, and associated construction of retaining walls, properly-sized culvert crossings to accommodate 100-year storm events in all Proposed Project segments, and bank slope protection in Segments 2 and 3 will reduce

existing erosion and sedimentation to Hayfork Creek and its tributaries within the Project Vicinity and contribute towards achieving TMDL goals for Hayfork Creek and the South Fork Trinity River. All exposed earthen slopes and soil areas will be stabilized with vegetation or engineered structures to control erosion and sedimentation. Overall, and following Proposed Project completion, soil erosion and sedimentation to Hayfork Creek and its tributaries are expected to be reduced from the existing condition, resulting in a net improvement.

The completed Proposed Project is not expected to change the pollutant loading to the water resources in the area, as vehicular use is not anticipated to change markedly from the existing condition. While widening the paved area of Hyampom Road will result in a slight increase in surface water runoff volumes, and will consequently increase runoff directly to Hayfork Creek and its tributaries, the amount of the increase is insignificant compared to the overall volume of water flowing to the Creek. Design features such as more frequent culverts, properly-sized culverts, and energy dissipaters will be incorporated into the Proposed Project design to mitigate the potential effects of increased surface water runoff and the potential for increased soil erosion and sedimentation. Following site restoration and revegetation activities, the Proposed Project will not measurably increase water temperatures within Hayfork Creek in the long-term.

3.8.4 Cumulative Impacts

3.8.4.1 Alternative 1 - No Action

No direct cumulative effects would occur with the No Action alternative. Water resources within the Project Vicinity may continue to degrade along all roadway segments due to erosion and sediment deposition into Hayfork Creek and its tributaries. Sediment deposition and overall erosion along the roadway will likely increase if no action is taken.

3.8.4.2 Alternative 2 – Reconstruction of Existing Alignment

Other projects in the area include improvements to Segment 1 of Hyampom Road by Trinity County, a winery processing and tasting facility in Hyampom, a senior housing project at SR 3 in Hayfork and an 8-unit resort at the Hyampom Airport. These projects, in addition to the fuels reduction and logging projects, mine reclamation project, and the two bridge replacement projects over Hayfork Creek are not anticipated to result in any cumulative adverse water quality effects (such as sedimentation and increases in water temperature from logging activities and removal of riparian vegetation) in combination with the Proposed Project because the construction of these are likely to occur at different times and effects will be localized to the area under construction. Impacts of these projects will be mitigated in a similar manner as the proposed project. In the long term, road and bridge improvement projects in other areas of Hayfork Creek will have similar benefits. These projects, in combination with the Proposed Project and with implementation of respective mitigation measures, are not expected to result in adverse effects to water quality in the Project Vicinity.

3.8.5 Mitigation Measures

3.8.5.1 Alternative 2 – Reconstruction of Existing Alignment

Construction Phase

The following BMPs will be employed to avoid or minimize the potentially adverse effects of project-related erosion, sedimentation, elevated water temperatures, and pollutant loading.

BMP-1 (SWPPP): The Proposed Project will require the preparation of a SWPPP, or similar plan, to define measures to be implemented by the construction contractor to mitigate project-related stormwater and point source pollution to project site waterways. The plan is part of the North Coast RWQCB NPDES permit program.

BMP-2 (Sedimentation): Major ground disturbing activities will be completed within the non-rainy season (May 1 to October 31) to avoid stormwater sedimentation and turbidity effects to Hayfork Creek and its tributaries. Major ground disturbing activities may occur outside the defined dry season based on a forecast of dry weather and permission from NOAA Fisheries. Permission may be granted by email. Ground disturbing activities will not take place when the ground is saturated.

BMP-3 (Sedimentation): Temporary erosion and sediment control structures must be in place and operational at the end of each construction day and maintained until disturbed ground surfaces have been successfully revegetated.

BMP-4 (Sedimentation): All instream work should be conducted from the top of bank or existing road surface where feasible. Instream work will require the preparation of a dewatering plan.

BMP-5 (Sedimentation): The contractor will keep on site at all times straw bales, straw wattles, silt fencing, or other similar sediment control materials. Exposed soils will be covered with erosion blankets, straw, hydromulch, or similar ground-covering materials as soon as feasible to control wind and water erosion of exposed soils and prevent sedimentation to aquatic habitats.

BMP-6 (Sedimentation): Revegetation efforts will begin as soon as feasible after completion of grading and before predicted rains or the rainy season.

BMP-7 (Temperature): Avoid all unnecessary removal of vegetation. Limit vegetation removal to only those areas where such removal is necessary for project completion.

BMP-8 (Temperature): Riparian vegetation removed during construction will be replaced as soon as feasible following task or project completion.

BMP-9 (Pollutants): Equipment staging areas will be designated for all fueling, storing, and washing/cleaning activities. Staging areas shall be located a minimum of 7.6 m (25 ft.) distant from aquatic habitats or water resources of the Project Vicinity.

BMP-10 (Pollutants): The contractor will keep at the Project site at all times emergency spill response supplies such as absorbent materials (pads, booms), materials for constructing barrier or coffer dams (to contain aquatic spills), and similar materials. The contractor will have employees trained in spill response on site during all construction activities.

BMP-11 (Pollutants): No wet concrete, drilling muds, or similar substances will contact water resources of the Project Vicinity. Concrete effluent or slurry will be isolated from flowing water by coffer dams or stream diversions. Waste (used) drilling muds will be pumped to holding tanks for storage or disposal at an approved facility. Settling basins or similar concrete washout areas will be constructed for the purpose of isolating and stabilizing wet concrete slurry or effluent.

BMP-12 (Fish Resources): If drafting of water from Hayfork Creek or other surface water drainages in the Project Vicinity is conducted, the contractor will implement mitigation measures and practices found within two guidance documents:

- "Water Drafting Specifications" (NOAA 2001), and
- "Guidelines for Temporary Water Drafting from Watersheds Supporting Anadromous Salmonids; Special Application for Timber Harvest Activities" (CDFG 2001)

Operation Phase

No mitigation is proposed for the operational phase of the Proposed Project.

3.9 Biology

This section analyzes biological resource impacts that may result from the construction and operation of the proposed improvements to Hyampom Road Segments 2, 3, 4, and 5. Permanent impacts to biological resources from the operation of Hyampom Road could result from reduction of habitat due to tree removal, while temporary impacts could result from construction activities.

3.9.1 Regulatory Framework

The federal ESA protects federally listed threatened and endangered species. Any project that would "take" listed species requires the implementation of measures to avoid or minimize these adverse impacts. "Take" includes both direct effects resulting in mortality and indirect effects that interfere with behaviors or habitats critical to the survival of the species.

Section 9 of the federal ESA prohibits acts of disturbance that result in the "take" of threatened or endangered species. Sections 7 and 10(a) of the federal ESA provide a method for permitting an action that may result in an "incidental take" of a federally listed species. Incidental take refers to "take" of a listed species that is incidental to, but not the primary purpose of, an otherwise lawful activity. Incidental take is permitted under Section 7 for projects on federal land or involving a federal action, while Section 10(a) provides a method for permitting an incidental take resulting from a state or private action. To comply with Section 7 requirements, consultation with the United States Fish and Wildlife Service (USFWS) and NOAA Fisheries was initiated at the beginning of the project to discuss the potential for project effects to federally-listed species.

The Magnuson-Stevens Fishery Conservation Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (public Law 104-297), requires all federal agencies to consult with the NOAA Fisheries on all actions or proposed actions (permitted, funded, or undertaken by the agency) that may affect Essential Fish Habitat. Essential Fish Habitat

(EFH) is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, and growth to maturity. In addition to their listing under the ESA, Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) are also managed by NOAA Fisheries under the MSFCMA, which can prompt an EFH consultation in addition to an ESA consultation. Similarly, EFH consultation is required as needed for Upper Klamath-Trinity Rivers (UKTR) Chinook salmon, even if it is not listed under ESA. EFH consultation is being consolidated with ESA consultation.

Executive Order 13186 on the Responsibilities of Federal Agencies to Protect Migratory Birds (the Migratory Bird Treaty Act) specifies the need to avoid adverse impacts to migratory bird resources when conducting agency actions, minimize temporary and long-term habitat losses, and mitigate unavoidable habitat losses.

The California Endangered Species Act (CESA) prohibits the "taking" of state-listed endangered or threatened plant and wildlife species. CDFG may authorize "taking" if it is incidental to an otherwise legal activity and "take" is minimized and fully mitigated. The CDFG has waived authority for a 2081 Take Permit under CESA for Segments 2, 4, and 5. CDFG has determined that when a project is undertaken by a Federal agency, as in the case of this project, Code sections 1601, 1603 and CESA do no apply, and this remains true whether the project is being done on Federal, State, or private lands (see letter dated July 11, 2002 in Appendix A).

3.9.2 Affected Environment

The following includes a general description of the biological setting in the Project Vicinity, followed by a more detailed description of the habitats within the Project Vicinity.

3.9.2.1 Regional Setting

The Project Vicinity is located within a mild coastal mountain climate characterized by warm summers and cold winters. Mean annual temperature ranges between 4.4 to 12.2 degrees Celsius (°C) (40° to 54° Fahrenheit [F]) with winter high temperatures between 4 to 10 °C (40s °F) and summer highs in the 32 to 37 °C (90s °F) range. The area experiences occasional snow in the higher elevations but rain accounts for the majority of precipitation. Mean annual precipitation is approximately 76.2 to 178 cm (30 to 70 in.). January is typically the wettest month and July is the driest.

3.9.2.2 Ecological Setting and Vegetation Types

Hayfork Creek is the main waterbody in the Project Vicinity and is the largest tributary of the South Fork of the Trinity River. Hayfork Creek flows into the Trinity River and then to the Klamath River before reaching the Pacific Ocean. The Hayfork Creek valley and watershed is steep and rugged and has been greatly altered by past logging activity, road construction, and large fires. Douglas-fir forest is the predominant habitat on the steep, rugged north-facing slopes on both sides of Hyampom Road. Other habitats that are present, but with limited distribution in the Project Vicinity, include white oak woodland, white alder riparian forest, and wetlands. Throughout much of the Project Vicinity, the steep, decomposed granite hill slopes immediately adjacent to the roadway and along road-cuts support sparse vegetation such as rayless arnica (*Arnica discoidea*), silene (*Silene californica*; *S. lemmonii*), California fescue (*Festuca californica*) and white hawkweed

(*Hieracium albiflorum*). Descriptions of habitat types within the Project Vicinity are provided in the *Biological Assessment* (BA) (CH2M HILL 2004f) and the *Biological Evaluation and Essential Fish Habitat Assessment for Federal and State Listed and Proposed Species Potentially Affected by the Hyampom Road Improvement Project (PM 6.8-8.3)*(May & Associates 2004a).

3.9.2.3 Habitat for General Wildlife Species Within the Project Vicinity

The aquatic, riparian, and upland forest communities within the Hayfork Creek valley provide potential habitat for a wide range of common and special-status wildlife species. The area provides habitat for amphibian species, such as pacific treefrog (*Hyla regilla*), and reptile species, such as southern alligator lizard (*Gerrhonotus multicarinatus*) and pacific gopher snake (*Pituophis melanoleucus catenifer*). Hayfork Creek provides important breeding and/or foraging habitat for osprey (*Pandion haliaetus*), common mergansers (*Mergus merganser*), and salmonid (*Oncorhynchus* ssp.) species. Bird species, such as spotted towhee (*Pipilo maculatus*), western scrub jay (*Aphelocoma californica*), American robin (*Turdus migratorius*), and common raven (*Corvus corax*), are prevalent throughout the area. The valley also provides habitat for mammal species, such as Townsend chipmunk (*Eutamias towsendii*), western gray squirrel (*Sciurus griseus*), common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), black bear (*Ursus americanus*), pacific fisher (*Martes pennanti pacifica*), and Columbian blacktail deer (*Odocoileus hemionus columbianus*).

3.9.2.4 Habitat for State and Federal Special-Status Species Within the Project Vicinity

The Project Vicinity provides habitat for a variety of local plant and wildlife species, including state and federal special-status species. These special-status species are included in Table 24 based on their documented occurrence within the general Project Vicinity, the presence of suitable habitat within the general Project Vicinity, and information provided by the USFWS, USFS and CDFG regarding species presence or potential to occur.

TABLE 24
Potential Special-status Species for the Proposed Project

Common Name	Scientific Name	Status	Effects
Plants			
Mingan moonwort	*Botrychium minganense*	FSC, CNPS 2	No effect
Western goblin	*Botrychium montanum*	FSC, CNPS 2	No effect
Shasta chaenactis	*Chaenactis suffrutescens*	CNPS 1B	Not likely to adversely affect
Clustered lady's slipper	*Cypripedium fasciculatum*	FSC, CNPS 4	Not likely to adversely affect
Mountain lady's slipper	*Cypripedium montanum*	FSC, CNPS 4	Not likely to adversely affect
Oregon fireweed	*Epilobium oreganum*	FSC, CNPS 1B	No effect
Tracy's eriastrum	*Eriastrum tracyi*	FSC, CNPS 1B	Not likely to adversely affect
Serpentine goldenbush	*Ericameria ophitidis*	CNPS 4	No effect
Dubakella Mountain buckwheat	*Erigonum libertini*	FSC, CNPS 4	No effect
Lemon-colored fawn lily	*Erythronium citrinum* var.	CNPS 4	No effect

TABLE 24
Potential Special-status Species for the Proposed Project

Common Name	Scientific Name	Status	Effects
	citrinum		
Heckner's lewisia	*Lewisia cotyledon* var. *heckneri*	FSC, CNPS 1B	Not likely to adversely affect
Tedoc Mountain linanthus	*Linanthus nuttallii* ssp. *Howellii*	FSS, CNPS 1B	No effect
Niles' madia	*Madia (Harmonia) doris-nilesiae*	FSC, CNPS 1B	Not likely to adversely affect
Stebbins' madia	*Madia (Harmonia) stebbinsii*	FSC, CNPS 1B	No effect
Peanut sandwort	*Minuartia rosei*	CNPS 4	No effect
Tracy's sanicle	*Sanicula tracyi*	FSC, CNPS 1B	Not likely to adversely affect
Canyon Creek stonecrop	*Sedum paradisum*	FSC, CNPS 1B	Not likely to adversely affect
Coast checkerbloom	*Sidalcea oregana* ssp. *eximia*	CNPS 1B	Not likely to adversely affect
Red Mountain catchfly	*Silene campanulata ssp. campanulata*	FSC, CE, CNPS 4	No effect
English Peak greenbriar	*Smilax jamesii*	FSC, CNPS 1B	No effect
Invertebrates			
Pressley hesperian	*Vespericola pressleyi*	FSS	Not likely to adversely affect
Hooded lancetooth	*Ancotrema voyanum*	FSC, FSS	Not likely to adversely affect
California floater	*Anodonta californiensis*	FSC	No effect
Trinity shoulderband	*Helminthoglypta talmadgei*	FSC, FSS	Not likely to adversely affect
Topaz juga	*Juga occata*	FSC, FSS	No effect
Trinity bristle snail	*Monadenia infumata setosa*	FSC, CT	Not likely to adversely affect
Klamath (Church's) Sideband	*Monadenia Churchi*	FSC, FSS	Not likely to adversely affect
Papillose Tail-dropper slug	*Prophysaon dubium*	FSS	No effect
Fish			
Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionary Significant Unit (ESU)	*Oncorhynchus kisutch*	FT, CSC	Not likely to adversely affect
Klamath Mountains Province Summer Steelhead ESU.	*Oncorhynchus mykiss irideus*	FSS, CSC	Not likely to adversely affect
Upper Klamath- Trinity Rivers Chinook Salmon ESU.	*Oncorhynchus tshawytscha*	FSS	Not likely to adversely affect

TABLE 24
Potential Special-status Species for the Proposed Project

Common Name	Scientific Name	Status	Effects
Amphibians			
Northern red-legged frog	*Rana aurora aurora*	FSC, FSS, CSC	No effect
Foothill yellow-legged frog	*Rana boylii*	FSS, FSC, CSC	Not likely to adversely affect
Tailed frog	*Ascaphus truei*	FSC, CSC	No effect
Cascades frog	*Rana cascadae*	FSC, CSC	No effect
Shasta salamander	*Hydromantes shastae*	FSC, FSS, CT	No effect
Del Norte salamander	*Plethodon elongatus*	FSC, CSC	Not likely to adversely affect
Southern torrent salamander	*Rhyacotriton variegatus*	FSC, CSC	Not likely to adversely affect
Reptiles			
Northwestern pond turtle	*Clemmys marmorata marmorata*	FSS, FSC, CSC	Not likely to adversely affect
Birds			
Marbled murrelet	*Brachyramphus marmoratus*	FT, CE	No effect
Bald eagle	*Haliaeetus leucocephalus*	FT	Not likely to adversely affect
NSO	*Strix occidentalis caurina*	FT	Likely to adversely affect
Yellow-billed cuckoo	*Coccyzus americanus*	FCE, CE	No effect
Northern goshawk	*Accipiter gentilis*	FSS, FSC, CSC	No effect
American peregrine falcon	*Falco peregrinus*	FSS, CE	No effect
Golden eagle	*Aquila chrysaetos*	FSC, CSC	No effect
Willow flycatcher	*Empidonax trailii*	FSS, CT	Not likely to adversely affect
Yellow warbler	*Dendroica petechia*	CSC	Not likely to adversely affect
Hermit warbler	*Dendroica occidentalis*	FSC	No effect
Vaux's swift	*Chaetura vauxi*	FSC, CSC	No effect
Flammulated owl	*Otus flammeolus*	CSC	No effect
Osprey	*Pandion haliaetus*	CSC	Not likely to adversely affect
Mammals			
Pacific fisher	*Martes pennanti pacifica*	FCT, FSS, CSC	Not likely to adversely affect
Pallid bat	*Antrozous pallidus*	FSS, CSC	No effect
Townsend's big-eared bat	*Corynorhinus townsendii*	FSS	Not likely to adversely affect
Spotted bat	*Euderma maculatum*	FSC, CSC	Not likely to adversely affect

TABLE 24
Potential Special-status Species for the Proposed Project

Common Name	Scientific Name	Status	Effects
Long-eared myotis	*Myotis evotis*	FSC, CSC	Not likely to adversely affect
Fringed myotis	*Myotis thysanodes*	FSC, CSC	Not likely to adversely affect
Long-legged myotis	*Myotis volans*	FSC, CSC	Not likely to adversely affect
Yuma myotis	*Myotis yumanensis*	FSC, CSC	Not likely to adversely affect
American marten	*Martes Americana*	FSC, FSS, CSC	Not likely to adversely affect
California wolverine	*Gulo gulo luteus*	FSC, CT	No effect
Mountain lion	*Felis concolor*	CFP	No effect

Notes:
Federal Status
FE Federally listed as endangered.
FT Federally listed as threatened.
FCE Candidate for federal listing as Endangered.
FCT Candidate for federal listing as Threatened
FSS USFS Sensitive Species
FSC Federal Species of Special Concern. Proposed rules have not yet been issued because they have been precluded at present by other listing activity.
California Status
CE State listed as endangered. Species whose continued existence in California is jeopardized.
CT State listed as threatened. Species that although not presently threatened in California with extinction are likely to become endangered in the foreseeable future.
CSC California Department of Fish and Game "Species of Special Concern." Species with declining populations in California.
CFP Fully protected against take pursuant to the Fish and Game Code Sections 3503.5, 3511, 4700, 5050, 5515.
Other Status
CNPS 1B: Plants that are rare, threatened or endangered in California and elsewhere.
CNPS 2: Plants that are rare, threatened or endangered in California, but more common elsewhere.
CNPS 4: Plants of limited distribution.

Aquatic, riparian, and mature forest communities are the primary special-status species habitat in the Project Vicinity. The following includes a description of these three vegetation types and the special-status species they may support.

Aquatic Habitat

Hayfork Creek is the largest aquatic feature in the Project Vicinity. Hayfork Creek and some of the larger perennial feeder creeks provide primary habitat for special-status wildlife such as salmonids (including coho, Chinook, and steelhead), foothill yellow-legged frog, and northwestern pond turtle. Other smaller perennial and ephemeral creeks have physical barriers to salmonids due to water depth and topography, but provide habitat for yellow-legged frog and other amphibian species. Hayfork Creek and some of the larger perennial tributaries to Hayfork Creek provide potential SONCC coho salmon recovery habitat as well as critical habitat for coho salmon and EFH for both the Chinook and coho. Hayfork Creek also provides foraging habitat for bald eagles. The USEPA has designated the Trinity River Basin (including Hayfork Creek) as impaired due to excessive sediment load and elevated water temperatures (CFR 1997). These factors are detrimental to aquatic species.

Riparian Habitat

Special-status plant species such as clustered lady's slipper are associated with the moist, shaded banks of riparian areas. Riparian habitat also provides habitat for special-status mollusk species such as the Trinity bristlesnail, hooded lancetooth, Trinity shoulderband, and Pressley hesperian. Special-status amphibians and reptiles such as yellow-legged frog, southern torrent salamander, and northwestern pond turtle are primarily aquatic but also depend on a well-developed riparian corridor for refuge and forage areas. Female northwestern pond turtles move up into riparian habitat and surrounding upland areas to establish nest sites. Several migratory bird species have riparian-dependent breeding and foraging natural history. Special-status raptors such as bald eagle and northern goshawk commonly forage in riparian areas. Riparian habitat provides a migratory corridor for the Pacific fisher.

Mature Forest Habitat

Once abundant in the Pacific Northwest, mature forest habitat has been reduced by intense logging. As a result, many plant and wildlife species populations associated with this habitat have declined and are considered special-status species. Chief among these are bird species such as the NSO and northern goshawk, and mammal species such as the pacific fisher. The NSO and goshawk depend on large mature trees and snags for nest sites.

There are two types of mature forest habitat in the Project Vicinity: Oregon White Oak Series (Oregon Oak Woodland and Forest) Habitat and Douglas-Fir Series Habitat. These are described below.

Oregon White Oak Series (Oregon Oak Woodland and Forest) Habitat

The Oregon white oak habitat type within the Project Vicinity includes the Oregon white oak series description (Sawyer and Keeler-Wolf 1995) and is within the Oregon oak woodland and forest types, per Holland (1986). The Oregon white oak series is common on dry slopes, ridges, raised stream benches and terraces. This habitat type occurs from the Santa Cruz Mountains of the Coast Range and the Pit River Drainage of the Cascades north into Southern Oregon at elevations ranging between 60 and 2,500 m (200 and 8,200 ft.). The vegetation is variable from pure stands of Oregon white oak to mixtures of conifers and broadleaf trees. Canopy cover ranges from dense closed canopies to open savannas (Holland 1986).

White oak woodland is found east of Little Creek, on the dry, rocky, south-facing slopes on the north side of the roadway in Segment 2. Oregon white oak is the dominant tree species with Douglas-fir, ponderosa pine, and madrone also present in the canopy layer. Foothill pine (*Pinus sabiniana*) and red bud (*Cercus occidentalis*) occur infrequently within this community. The understory is well developed and includes shrubs such as skunkbush (*Rhus trilobata*), mountain mahogony (*Cercocarpus betuloides*), snow berry (*Symphocarpus mollis*), and buckbrush (*Ceanothus integerrimus*). The herbaceous layer (composed of non-woody plants) is characterized by dense graminoids (grasses, rushes, and sedges) including dogtail (*Cynosurus echinatus*), woodland brome (*Bromus laevipes),* soft chess (*Bromus hordeaceus*), blue wildrye (*Elymus glaucus*), and bulbous bluegrass (*Poa bulbosa*). Common forbs include Indian pink (*Silene californica*), yarrow (*Achillea millefolium*), bedstraw (*Galium ambiguum*), slender tarweed (*Madia gracilis*), and yellow star-thistle (*Centaurea solstitialis*).

The Oregon white oak series includes a mixture of hardwoods and conifers and is classified as Montane Hardwood (MHW) habitat in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988).

Douglas-Fir Series Habitat

This habitat type is included in the Douglas-fir series description (Sawyer and Keeler-Wolf 1995) and is within the coast range mixed-conifer forest type, per Holland (1986). The Douglas-fir series is common on moist slopes in the Klamath and Coast Ranges, at elevations between 600 and 1,980 m (2,000 and 6,500 ft.), from southern Oregon to Napa and Sonoma Counties. The vegetation often includes a complex mosaic of species, but is dominated by Douglas-fir (*Pseudotsuga menziesii)*. Species composition and cover are variable depending on several factors, including elevation, slope, aspect, disturbance, and succession.

Douglas-fir forest is widespread throughout the Project Vicinity. This community primarily occurs on the steep, north to northeasterly facing slopes above Hayfork Creek in Segments 4 and 5, and was also observed in areas at lower elevations within Segments 2 and 3, where slopes were less severe. Common species within the study limits include Douglas-fir, ponderosa pine (*Pinus ponderosa*), black oak (*Quercus kelloggii*), white oak (*Q. garryana*), canyon live oak (*Q. chrysolepis*), and madrone (*Arbutus menziesii*). Sugar pine (*Pinus sambiana*) and incense cedar (*Calocedrus decurrens*) are also scattered throughout this community, but are less prevalent. The forest community generally has a dense, multi-layered canopy with a sparse understory consisting of scattered shrubs such as white leaf manzanita (*Arctostaphylos manzanita*), Sierra gooseberry (*Ribes roezlii*), and pinemat (*Ceanothus prostratus*). Herbaceous vegetation includes species such as little prince's-pine (*Chimaphila menziesii*), rattlesnake plantain (*Goodyera oblongifolia*), white hawkweed, and California fescue (*Festuca californica*).

Several drainages and creeks are interspersed throughout the Douglas-fir forest. Big leaf maple (*Acer macrophyllum*) and Douglas-fir are the most common species present along the margins of the drier intermittent drainages. Species associated with the small perennial creeks include Douglas-fir, big leaf maple, white alder (*Alnus rhombifolia*), and dogwood (*Cornus sessilis, C. sericea*). Other small habitat inclusions include seeps and wet meadows, which are described previously in Section 3.7.1.3.

The Douglas-fir Series observed in the Project Vicinity includes elements of both the Douglas Fir (DFR) and the Montane Hardwood Conifer (MHC), as classified in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Both of these habitats include a mixture of coniferous and hardwood tree species.

3.9.2.5 Critical Habitat for Federal Special-Status Species Within the Project Vicinity

As defined by the Federal ESA, critical habitat refers to specific geographic areas that are essential for the conservation of a threatened or endangered species and may require special management and protection.

SONCC coho salmon critical habitat was designated in 1999. Designated critical habitat for the SONCC coho salmon includes all accessible rivers within the described range, as well as the associated riparian areas that provide shade, sediment, nutrients, stream bank security, and input of large wood (including future recruitment). This includes Hayfork Creek and

other watersheds in Trinity County (Federal Register 1999). In the Klamath Basin, EFH has been designated for the mainstem Klamath River and its tributaries from its mouth to Iron Gate Dam and upstream to Lewiston Dam on the Trinity River, and includes the water quantity and quality conditions necessary for successful adult migration and holding, spawning, egg-to-fry survival, fry rearing, smolt migration, and estuarine rearing of juvenile coho and chinook salmon.

The USFWS designated critical habitat for NSO in 1992 (USFWS 1992). Portions of the Project Vicinity are located within one designated critical habitat unit (CA-35) and numerous historical "activity centers" are located in the Project Vicinity. Segments 2 and 3 are located within the critical deer winter range of the Hayfork Deer Herd, identified by the CDFG.

3.9.2.6 Vegetation and Wildlife

Special-Status Fish Species

SONCC coho salmon have been observed in Hayfork Creek, although not recently. The SONCC coho salmon was seen in Olsen and Corral Creeks, tributaries to Hayfork Creek in Hyampom (Ashton 2003). Furthermore, there are no perceived barriers to prevent this ESU from expanding their current distribution and reestablish their presence throughout Hayfork Creek, including reaches within and adjacent to the Project Vicinity. Suitable habitat for other special-status salmonid species (Chinook and steelhead) is currently found there, suggesting that the creek provides habitat components for spawning and rearing.

Special-Status Plant Species

There are no records of federally-listed or state-listed plant species or plants identified as federal species of concern in the Project Vicinity. No special-status plants were observed during 2002 and 2003 surveys of appropriate habitat of Segments 2, 4, and 5 (CH2M HILL 2004e). Surveys in 2000, 2001, and 2002 of Segment 3 found several USFS Sensitive Plants: Clustered (brownie) lady's slipper (*Cypripedium fasciculatum*) at James Creek, Niles madia (*Madia doris-nilesiae*) on a slope near Station 117 in Segment 3, and Canyon Creek stonecrop (*Sedum paridisum=Sedum obtusatum ssp. Paradisum*) along Hayfork Creek (in Action Area but outside of cut and fill limits) (May and Associates, 2002b, 2004c) .

Mollusks (Invertebrates)

Eight sensitive mollusk species were surveyed within the Proposed Project site. These include the state threatened Trinity bristlesnail (*Monadenia infumata setosa*), and four former USFS Survey and Manage species: hooded lancetooth (*Ancotrema voyanum voyanum*), Church's sideband (*Monadenia churchi*), Trinity shoulderband (*Helminthoglypta talmadgei*) and papillose tail-dropper slug (*Prophysaon dubium*). The remaining species are Pressley Hesperian (also former USFS survey and manage) and California floater and Topaz juga (USFS Sensitive Species) (USDA, USDI 1994 and 2001). Trinity bristlesnail was found to occur fairly expansively throughout the Action Area. Nine live specimens of hooded lancetooth were found patchily distributed in all sampled segments of the Action Area. Two specimens of Trinity shoulderband and 14 Church's sideband were found along Segment 3. One vacant shell of a Trinity shoulderband was found in Segment 5. The California floater, the Topaz juga and the Papillose tail-dropper slug were not found in any segments (NSR 2001).

Pressley hesperian (*V. pressleyi*), was observed within Segment 3 of the Action Area during the 2001 survey series, and none were observed during the 2003 survey series within Segments 2, 4, and 5 though historic records of this species are known from Segments 2 and 4. Apparently suitable habitat for *V. pressleyi* exists at several locations within the Project Vicinity. These include several perennial creek and spring-fed drainage crossings in Segments 2 and 5 (tributaries to Hayfork Creek). This species may also be present in those seasonally intermittent drainage corridors throughout the Project Vicinity that include sufficient ground cover to provide moisture refuge areas through the dry season. However, the absence of living specimens or vacant shells of *V. pressleyi* at the sample stations within Segments 2, 4, and 5 suggest its presence is in such low abundance as to be undetectable. Little Creek (Segment 2) may support mollusk species (though none were found in November 2003), but the abundance of Himalayan blackberry (*Rubus discolor*) made it exceptionally difficult to thoroughly search this location (CH2M HILL 2004b).

Herpetofauna (Amphibians and Reptiles)

The Project Vicinity includes a diverse group of amphibians and reptiles common to the Klamath Range and provides appropriate habitat for several special-status herpetofauna identified as federal or state species of concern or USFS Sensitive. Rough-skinned newt (*Taricha granulosa*), Oregon salamander (*Ensatina eschscholtzii oregonensis*), foothill yellow-legged frog (*Rana boylii*), and Pacific treefrog (*Hyla regila*) were observed in or near ephemeral and perennial drainages. Northwestern pond turtle (*Clemmys marmorata marmorata*), southern alligator lizard (*Gerrhonotus multicarinatus*), and common garter snake (*Thamnophis sirtalis fitchi*) were observed near perennial water bodies such as Hayfork Creek. Other reptile species such as western fence lizard (*Sceloporus occidentalis occidentalis*), Pacific gopher snake (*Pituophis melanoleucus cantenifer*), and western rattlesnake (*Crotalis viridis*) were observed incidentally in upland areas along Hyampom Road.

Birds

The Project Vicinity includes a diverse group of bird species common to the Klamath Range and provides appropriate habitat for several special-status bird species identified as federal or state-listed, federal or state species of concern, or USFS Sensitive. The dedicated bird surveys and incidental bird observations yield a wide range of species associated with the Hayfork Creek riparian corridor and the forested upland slopes along the Hyampom Road alignment. Species observed along the creek included common merganser (*Mergus merganser*), American dipper (*Cinclus mexicanus*), and Brewer's blackbird (*Euphagus cyanocephalus*). Warblers were seen and heard along the creek and into the surrounding upland forest. These included the yellow warbler (*Dendroica petechia*), a California species of concern. Mountain quail (*Oreortyx pictus*), mourning dove (*Zenaida macroura*), acorn woodpecker (*Melanerpes formicivorus*), western scrub-jay (*Aphelocoma californica*), white-breasted nuthatch (*Sitta carolinensis*), and black-headed grosbeak (*Pheucticus melanocephalus*) were observed in upland areas with more open scrub and oak habitat. A pileated woodpecker (*Dryocopus pileatus*) was observed in the oak trees surrounding a small pond in Segment 5. Birds such as common raven (*Corvus corax*), Oregon junco (*Junco hyemalis thurberi*), Stellar's jay (*Cyanocitta stelleri*), and American robin (*Turdus migratorius*) were found throughout the area. The Action Area is outside of the known range of the marbled murrelet (*Brachyramphus marmoratus*) (federally-threatened, state-endangered) and the Yellow-billed cuckoo (federal candidate).

Owl species including western screech owl (*Otus kennicottii*), flammulated owl (*Otus flammeolus*), northern pygmy owl (*Glaucidium gnoma*), northern saw-whet owl (*Aegolius acadicus*), and NSO (*Strix occidentalis caurina*) were detected during NSO protocol night surveys. NSO (federally-threatened) is present within the Project Vicinity. Spotted owls were detected in the Action Area during 2002 and 2003 protocol surveys. As discussed above, portions of the Action Area are located within designated critical habitat and numerous historical "activity centers" (breeding/nesting areas) are located in the vicinity. However, no active or historically active nest sites appear to be within 0.8 km (0.5 mi.) of the Action Area. Other raptor species included red-tailed hawk (*Buteo jamiacensis*) and Cooper's hawk (*Accipiter cooperii*). A golden eagle (*Aquila chrysaetos*) was observed east of Hayfork in May 2003. An injured Golden Eagle was rescued 3 miles south of Hayfork in July 2005 (Smith 2005).

The bald eagle, a federally-threatened species, is present within the Project Vicinity. In 2003, bald eagles were observed foraging along Hayfork Creek, adjacent to Segment 4. A pair of bald eagles was also observed in 2002 and 2003 at the Ewing Reservoir, at the north edge of the town of Hayfork. Bald eagles have not been observed nesting in the Hayfork Creek riparian corridor and likely use the area for foraging only.

Mammals

The Project Vicinity provides habitat for three special-status mammal species and dozens of other mammal species that have been observed in the area. The special-status mammals include the Pacific fisher (*Martes pennanti pacifica*), the California wolverine (*Gulo gulo luteus*), and the mountain lion (*Felis concolor*).

The Pacific fisher, a California Species of Special Concern and a Federal candidate species, is a member of the weasel family and is typically associated with large expanses of mature forest; hollow trees, snags and downed logs are used for resting and cover sites. The California Natural Diversity Database (CNDDB) records include several observations within 16 km (10 mi.) of the Project Vicinity (CNDDB 2003). Fishers are likely attracted to Hayfork Creek and have been observed crossing Hyampom Road at night.

The California wolverine, a California threatened species, is the largest member of the weasel family. This species is primarily associated with sub-alpine and alpine forest and meadows and their range extends into mountainous areas of Northern California. The CNDDB records include 2 observations within 16 km (10 mi.) of the Project Vicinity, 1 observation 7.2 km (4.5 mi.) north of Segment 5 of Hyampom Road.

The Project Vicinity provides foraging habitat for the mountain lion, a California fully protected species. The mountain lion has a wide range in the western United States and is generally found wherever its primary prey, deer, is abundant. Mountain lion observations are numerous in the general area surrounding Hayfork. In summer of 2003, Vernon Rylee, a property owner immediately adjacent to Segment 2, observed a mountain lion on his property (Rylee 2003).

3.9.3 Environmental Consequences

3.9.3.1 Alternative 1 - No Action

The current condition of disrepair and inefficient stormwater runoff diversion of Hyampom Road has resulted in eroded hillsides and increased sediment in Hayfork Creek and its tributaries. Under the no action alternative, sediment deposition and overall erosion along the roadway will likely increase, thereby reducing the quality of wetland, riparian, and aquatic habitats in the area.

3.9.3.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

Vegetation

Potential adverse effects to vegetation include temporary and permanent loss of forest, riparian, and wetland vegetation resulting from project construction. Approximately 96 ha (237 ac.) of mixed coniferous forest habitat could be removed as a result of the Proposed Project. Of this, 84 ha (208 ac.) consist of Douglas-Fir and the remaining 12 ha (29 ac.) of forest habitat consist of Oregon White Oak woodland. This represents the total area of the construction footprint for Segments 2, 3, 4, and 5 less the existing roadway (pavement, shoulders, and roadcuts). Except within the clear zone of the reconstructed roadway, most of the tree removal will be temporary, since disturbed soil areas will be reseeded with replacement trees. Up to 0.30 ha (0.74 ac.) of jurisdictional waters (including creeks, streams, and wetlands) could be affected by implementation of the Proposed Project. Effects on jurisdictional waters are discussed in more detail in Section 3.7 of this EA.

There are no records of federal or state-listed or special-status plant species along Segments 2, 4, and 5 in the Project Vicinity and none were observed during surveys of appropriate habitat within these segments. The TCDOT surveys found several USFS Sensitive Plants (Clustered (Brownie) lady's slippers, Canyon Creek stonecrop and Nile's madia) along Segment 3. Therefore, construction activities associated with the Proposed Project may result in adverse effects to these sensitive plant species along Segment 3.

Wildlife

Project construction may result in adverse effects to several special-status wildlife species.

The drainages, seeps, springs, ponds, creeks, and the riparian vegetation that surround them in the Project Vicinity represent important habitat for several fish, amphibian and reptile species, invertebrates, and bird species. Water drafting from Hayfork Creek to use in water trucks for the control of fugitive dust may affect fish resources. Timber clearing may also affect fish resources due to the exposure of more ground to erosive forces and potential for increased water temperatures due to less vegetation along creek beds. With proposed mitigation, these impacts are expected to be small.

Two state and federal Species of Concern, the foothill yellow-legged frog and western pond turtle, are known to be present in the area, particularly along Hayfork Creek in Segments 2 and 3. These areas also provide potential breeding habitat for federally threatened SONCC coho salmon and other state and federal Species of Concern, Chinook salmon, steelhead, tailed frog, and the southern torrent salamander. The Proposed Project may include the disturbance of riparian retreat, forage, and movement corridors for foothill yellow-legged

frog, tailed frog, southern torrent salamander, and Pacific fisher. The Proposed Project may also involve the disturbance of western pond turtle nest sites. The Proposed Project may adversely affect mollusks (such as the state threatened Trinity bristle snail) both directly (crushing individuals during construction) and indirectly (modification or elimination of suitable habitat areas through de-watering, sedimentation, erosion, etc.). The Proposed Project may disturb bird species that depend on riparian habitat for nesting and foraging resources. Unmitigated disturbance of aquatic and riparian areas by draining, filling, encroachment, or discharge of sediments, pollutants or other materials into the aquatic habitat may result in direct and indirect adverse impacts to these species. However, with mitigation, these impacts are expected to be small.

Disturbance to Critical Deer Winter Range of the Hayfork Deer Herd will result from the Proposed Project. However, this disturbance will be relatively minimal, consisting of the loss of approximately 2.6 ha (6.5 ac.) of upland and riparian habitat within the Critical Deer Winter Range.

Mature forest habitat represents one of the most valuable upland habitats in the Project Vicinity. This habitat supports certain mammals as the Pacific fisher (state and federal Species of Concern) and the California wolverine (state Threatened and federal Species of Concern) that may be adversely affected by project construction activities. Mature forests are also a scarce and valuable resource for several species, including NSO (federal Threatened), bald eagle (federal Threatened) and northern goshawk (state and federal Species of Concern). Unmitigated disturbance of upland habitat potentially could result in mortality of, or other adverse impacts to, these bird species. Although bald eagles were observed foraging in the Action Area, no nest sites are known to be located in proximity to the proposed project and therefore will not be adversely affected by proposed construction activities. (CH2M HILL 2003e).

Road widening and construction will involve the removal of suitable NSO habitat and activities that could disrupt local NSO. Vegetation removal will include the loss of approximately 8.5 ha (21 acres) of NSO critical habitat. The existing roadway may compromise the existing function of the adjacent critical habitat. Blasting and other construction noise could cause temporary owl displacement or even nest loss. Such impacts will be avoided by identifying NSO active nest sites prior to construction, and avoiding noisy activities and night-time construction near active nests until fledgling is complete. Even with mitigation, the impacts to NSO are considered adverse, but not likely to jeopardize the continued existence of the species, or adversely modify its critical habitat (USFWS 2005).

Operation Phase

The Proposed Project will allow for a slight increase in travel speeds; however, the Proposed Project will also improve sight distances, which tends to reduce vehicle/wildlife collisions. Erosion and sediment discharge into waterways from the roadway is expected to decrease, improving water quality in the area.

3.9.4 Cumulative Impacts

3.9.4.1 Alternative 1 – No Action

No direct cumulative impacts would occur with the No Action Alternative.

3.9.4.2 Alternative 2 – Reconstruction of Existing Alignment

Other projects in the area include an improvement of Segment 1 of Hyampom Road by Trinity County, a winery processing and tasting facility in Hyampom, and an 8-unit resort at the Hyampom airport. Other proposed projects include two bridge replacement projects in Hayfork, various logging projects, and a mine reclamation project. The other road and bridge construction projects on Hyampom Road and Hayfork Creek, respectively, and various logging projects will result in the temporary and permanent loss of some forest, riparian, and wetland vegetation. The road and bridge projects will require replanting of any riparian vegetation removed as a result of construction and are expected to decrease erosion and sediment discharge into waterways, improving water quality in the area. The mine reclamation project will improve habitat and decrease sedimentation in the area by vegetating a currently unvegetated area. The winery processing and tasting facility and 8-unit resort are in open areas, and will not result in the loss of forest, riparian, and wetland vegetation, and their impact on water quality is expected to be negligible. These projects, in combination with the Proposed Project, are not expected to result in significant impacts to biological resources.

3.9.5 Mitigation Measures

3.9.5.1 Alternative 2 – Reconstruction of Existing Alignment

Mitigation measures implemented to protect listed species also protect or provide mitigation for species that are not currently listed but may be listed in the future, or that may have recreational, social, or commercial values. Biological mitigation measures for the Proposed Project are intended to avoid, minimize, or compensate for adverse impacts to special-status species, so that their continued survival is not jeopardized.

The following sections describe the mitigation measures proposed to avoid, minimize, or compensate for potential impacts to biological resources. The measures are grouped and presented as general measures by the following categories: measures for plant species; aquatic habitat and associated special-status species; and upland habitat and associated special-status species.

Mitigation measures for special-status species are further discussed in detail in the BA for Segments 2, 4, and 5 (CH2M HILL 2004f) and the Biological Evaluation and Essential Fish Habitat Assessment (EFHA) for Segment 3 (May 2004a).

3.9.5.2 General Measures

The following includes general BMPs and mitigation measures intended to avoid adverse impacts throughout the Project Vicinity:

- Establish clearly identified construction zone limits.
- Pesticide and herbicide use is prohibited by County ordinance.
- Litter will be disposed of in secure containers.
- Smoking will only be allowed in vehicles or in cleared and designated areas.
- There will be no feeding or intentional disturbance of wildlife.
- All hazardous material spills will be reported and cleaned up immediately.
- There will be no discharge of water into unapproved areas.

- Erosion control measures will be in place in all work areas.
- Fluid spill containment and clean-up materials will be readily available.

3.9.5.3 Measures for Special-Status Plant Species

Revegetation of cleared areas will be performed with native plant species. For those USFS sensitive plant species observed along Segment 3, the following mitigation measures will be incorporated into the project construction:

- Potential impacts to the clustered (Brownie) lady's slipper will be reduced by a focused survey prior to construction to determine the precise location of the population presence; if this species is likely to be disturbed by construction, the James Creek bridge design will be modified to avoid this plant species and the population shall be clearly demarcated with construction barrier fencing; if avoidance is not feasible, the entire population will be transplanted to another suitable location on James Creek in consultation with a USFS botanist.
- Potential impacts to the Canyon Creek Stonecrop will be reduced by fencing the known population with construction barrier fencing and avoiding these areas during construction.
- Potential impacts to the Nile's madia will be reduced by scheduling construction within the vicinity of the plants after seed set (i.e. mid-July through October) and stockpiling soil in order to preserve the madia seedbank for reapplication after construction is complete. Reapplication of the madia seedbank should occur prior to the onset of fall rains.

3.9.5.4 Measures for Aquatic and Riparian Habitat and Associated Special-Status Wildlife Species (Fish, Amphibians, Reptiles and Invertebrates)

The following mitigation measures will be incorporated into the construction design and schedule to reduce adverse impacts to aquatic-associated species and their habitat. These species include SONCC coho salmon, Chinook salmon, steelhead, foothill yellow-legged frog, tailed frog, and northwestern pond turtle.

- All BMPs from Section 3.8.5.1 will be followed.
- Restrict work in aquatic and surrounding riparian habitat to the dry season (May 1 to October 31) in order to reduce interference with the breeding season of frogs, salamanders, and fish.
- Erosion control measures will be installed to prevent discharge of sediments into aquatic habitats.
- If water diversion or water drafting is necessary, it will be done according to NOAA Fisheries and CDFG Guidelines. Inflow pumps will be fitted with screens to prevent intake of wildlife, and drafting will not exceed 10 percent of the base flows.
- Equipment will not be parked or stored overnight within 7.6 m (25 ft.) of an aquatic resource.

- Equipment fueling or maintenance activities will not occur within 7.6 m (25 ft.) of an aquatic resource.

The Proposed Project will disturb invertebrate habitat within riparian areas. The following mitigation measures will be incorporated into the construction design and schedule to reduce adverse impacts to the invertebrate species including Trinity bristle snail and associated habitat.

- All BMPs from Section 3.8.5.1 will be followed.
- Forest duff, downed logs, and limbs will be salvaged from select locations during construction and stockpiled for restoration. Following construction, this material will be placed in appropriate areas of temporary disturbance. Such ground cover will likely replace some of the species habitat removed during construction.
- With respect to potential impacts to the Trinity bristle snail, Trinity County is subject to CESA and will get an Incidental Take Permit and fully mitigate for Segment 3 impacts (May & Associates 2002c).

3.9.5.5 Measures for Upland Habitat and Associated Special-Status Wildlife Species (Birds and Mammals)

The following measures will be implemented by the Proposed Project to reduce adverse impacts to bird species using upland habitat:

- Implement pre-construction surveys for the NSO and bald eagle in the year of construction or the year immediately prior to the beginning of construction.
- All construction equipment will be properly muffled.
- In order to reduce the impacts to the NSO the following restrictions will be included in the contract specifications:

Restricted Activity	Distance from NSO Nest	Dates of Restriction
Activities that cause noise above 90 dBA	0.4 km (0.25 mi.)	March 1 to June 30
Nighttime construction (½ hour before sunset to ½ hour after sunrise)	0.8 km (0.5 mi.)	March 1 to July 31
Blasting	1.6 km (1 mi.)	March 1 to September 30

- Other disruptive activities can be defined as any activity sustained for such a period or at such an auditory volume that might cause a breeding pair to abandon an established nest area or otherwise compromise the breeding season effort. At this time, there are no known nest sites within 1.6 km (1 mi.) of the Action Area.
- Limit ground disturbing activities to the minimum necessary to construct the Proposed Project. Tree removal will be kept to a minimum, and large snags and old growth trees

that do not pose a risk to the safety of motorists (greater than 75 cm [30 in.] diameter-at-breast-height) will especially be avoided if possible.

- Variable sized woody debris will be salvaged from select locations and stockpiled during construction and later placed in large flat ravine fill areas, providing potential cover for NSO prey.
- Remove all trees during the non-nesting season (August 1 to January 31) to avoid take of eggs or juvenile birds. Trees may be removed during the breeding season if current year surveys indicate any of the following conditions are true: 1) there are no occupied nests, 2) nesting was initiated but failed, or 3) nesting was successful, and fledglings have moved to a point greater than 0.4 km (0.25 mi) from the proposed clearing activities.

The following measures will be implemented by the Proposed Project to reduce adverse impacts to mammal species such as the Pacific fisher and mice (which are a prey species for NSO) that are supported by upland habitat:

- Forest duff, downed logs, and limbs will be salvaged from select locations during construction and stockpiled for restoration. Following construction, this material will be placed in appropriate areas of temporary disturbance. Such ground cover will likely replace some of the species habitat removed during construction.

Operation Phase

No mitigation is proposed for the operational phase of the Proposed Project.

3.10 Cultural Resources

This section analyzes cultural resources impacts which may result from the construction and operation of the proposed improvements to Hyampom Road Segments 2, 3, 4, and 5. Potential impacts to cultural resources from the construction of Hyampom Road could result from clearing (vegetation removal), earth movement (grading, trenching), encroachment (workers, vehicles, equipment staging, and laydown, etc.), and vandalism (unauthorized artifact collection or deliberate destruction of archaeological or historic features).

3.10.1 Regulatory Framework

Federal laws protecting cultural resources include the National Historic Preservation Act of 1966. Among its provisions, the Act established the Advisory Council on Historic Preservation and authorized the Secretary of the Interior to maintain a National Register of Historic Places. Section 106 of the Act requires that Federal agencies take into account the effects of their actions on properties that are listed on, or are eligible for listing on, the National Register. Other key federal laws include the Historic Sites Act of 1935 and the National Trust Act of 1949.

3.10.2 Affected Environment

3.10.2.1 Prehistory

The Project Vicinity lies within Chimariko/Western Wintu territory; an area where little archaeological work has been conducted. Considerably more is known about the prehistory of the Redding area and the North Coast Ranges. Until the 1980s, it was generally believed that the Redding area contained very little prehistoric time depth and that most archaeological sites date to the Late Prehistoric and Protohistoric Wintu culture. With few exceptions, most of the excavated sites were assigned to the Late Period Shasta Complex. The Shasta Complex is characterized by the presence of hopper mortars, small stemmed projectile points with long tangs, bipointed knives, drills, gravers, and shell beads and pendants. Since 1970, archaeological investigation work conducted within the North Coast Ranges and adjacent areas has greatly increased. In the Project Vicinity, most of the investigated sites have been found immediately next to the Trinity River and other rivers and streams. Few sites located in neighboring upland regions or within inland valleys, such as Hayfork Valley, have been studied. Within the vicinity of Segment 1, test excavations have occurred at three prehistoric sites.

3.10.2.2 Ethnography

The Project Vicinity is located within the ethnographic territory of the Wintu or Northern Wintu Indians with the westernmost part of the Project Vicinity possibly belonging to the Eastern Chimariko. The Wintu are a group whose language is related to the Nomlaki (Central Wintun) and Patwin (Southern Wintun) peoples. The Wintu lived in the upper Sacramento Valley from Cottonwood Creek north through Redding to the South Fork of the Trinity, Sacramento, and McCloud rivers where their territory joined that of the Shasta and Okwanuchu.

The Project Vicinity is situated within an area claimed by the Hayfork Wintu division (the *Nor-Rel-Muk* or *Ni-iche* , and *Normuk* or *Norelmok*). The Hayfork Wintu occupied the lower Trinity River watershed to about Burnt Ranch, west of Big Bar as well as the upland areas surrounding Hayfork Creek south to South Fork Mountain. The Wintu were hunters and gatherers that moved about seasonally to procure resources. Permanent villages located in the valley were oriented along the banks and marshes of the rivers. In summer and fall, groups moved to the adjacent plains and tributary streams. In contrast, Wintu groups within upland/mountainous regions built winter homes where streams and open valleys converged (such as Hayfork and Hyampom) or in favorable spots further upstream. In summer, they moved away into hill or mountain areas.

3.10.2.3 Ethnohistory

Earliest non-Indian contact with the Wintu occurred during 1826 and 1827 with expeditions of Hudson Bay Company trappers and traders Peter Skene Ogden and Jedediah Smith. In 1832, an expedition led by John Work through eastern Wintu territory brought malaria and death to many Indians. The malaria epidemic resulted in the death of 75 percent of the Indians living in the central and upper Sacramento Valley.

Non-Indian settlement within Wintu territory quickly followed the early explorations. In 1843, using Hudson Bay Company trappers, Pierson B. Reading blazed a new emigrant

route from Fort Hall, Idaho to California. Called the "Reading Route", this trail crossed the eastern fringe of Wintu territory by way of the Pit River and Cow Creek. John C. Fremont and Peter Lassen used this same trail in 1846. The western mountainous part of Wintu territory was penetrated in 1848 when Smith blazed a trail westward toward Hayfork Valley and the Coast. In 1844 Reading received a large Mexican land grant. The discovery of gold and expansion of mining into northern California brought more settlers into the Project Vicinity. Many altercations and raids occurred as Indian territory was quickly diminished and replaced by settlers. To curb rising hostilities, several treaties were negotiated with Wintu and Nomlaki groups and Reservations were formed in the 1850s and 1860s.

3.10.2.4 History

Gold was discovered in the nearby Trinity River in 1848 and created a gold rush into the county. The search for gold resulted in mining claims along the Trinity River and Hayfork Creek. The influx of miners created opportunities for businesses that included hotels and saloons. The gold mining industry peaked about 1920.

Hayfork was established in 1851 and named by a Mr. Kingsberry, the first permanent Euro-American resident. Kingsberry operated a local trading post and store. Hayfork was originally named Hay Town after the lush grasses the valley produced. The name was later changed to Hayfork because of its location with the North and South Fork of the Trinity River.

The earliest Euro-American residents were ranchers. In 1850, E.M. George found the valley was suitable for livestock; however, the local Native Americans were too hostile for George to settle there alone. He returned in 1853 with settlers who established themselves in the valley. This initial group established schools, churches, and local government, setting the foundation for Hayfork. Ranching soon gave way to the production of small grains and a sawmill. By 1860 the population of Hayfork reached 1,200. Agricultural production declined in the early 1900s, and the county relied mostly on agricultural products from the Sacramento Valley.

California's population increase spurred an interest in timber products that expanded the lumber industry in the Hayfork area during the 1930s. During this period was also an increase in the local population and Federal projects that included the Civilian Conservation Corps who worked on fire suppression, timber stand improvement, and the construction of telephone lines, roads, and bridges.

Hayfork's population peaked in the 1930s and 1940s when the timber industry boomed with as many as 14 active sawmills in and around the small community. Lumber remained a significant economic activity until the last sawmill closed in 1997. Although the mining industry peaked around 1920, at present it continues to be a part of the local economy.

Hyampom Road was originally a trail used during the pioneer era for travel from Humboldt Bay over the mountains towards the Sacramento Valley. The road from Hayfork to Hyampom replaced the trail with construction beginning in 1913. The road was needed to promote logging and gold mining, to improve fire protection, and to ease the shipping of supplies. Completion of the road was slow due to funding shortages but was finally completed in 1924; and widened in places in the 1950s and paved in early 1960s.

3.10.2.5 Cultural Resources

Segment 2 contains one prehistoric site, two historic sites, and two historic isolates. None of the sites are eligible. A site excavation to determine eligibility of the prehistoric site occurred on July 13, 2005. No prehistoric Native American artifacts, remains, or archaeological deposits associated with Prehistoric Native American occupation or use were found. From this, the site was determined ineligible for inclusion on the National Register of Historic Places. In addition, an archaeological survey report was sent to the Nor-Rel-Muk tribe in November 2004, members of the tribe were consulted before the subsurface testing of the site, and consultation with the tribe is ongoing (see Chapter 5 for a complete discussion).

Segment 4 contains one prehistoric site which is located outside the proposed road realignment construction limits. This site is potentially eligible for listing; consultation with the State Historic Preservation Office (SHPO) office is ongoing.

Segment 3 contains one historic site, the ruins of the "Otis Place", and the Hayfork Nine-Mile Bridge. The historic site, the "Otis Place", and the bridge were determined not eligible (Hughes 2001).

3.10.3 Environmental Consequences

Potential adverse effects to cultural resources associated with the construction of the Hyampom Road improvements would primarily result from earth-disturbing operations. Construction activities typical for roadway projects (excavation, grading, clearing, etc.) have the potential to disturb or destroy archaeological resources.

3.10.3.1 Alternative 1 - No Action

There would be no effect on cultural resources if no action was taken.

3.10.3.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

The potentially eligible site in Segment 4 is located outside the proposed road realignment construction limits. If the construction limits change such that this site will be impacted, the eligibility of the site and measures to mitigate impacts will be determined through consultation with the SHPO prior to construction.

Although the Proposed Project will not impact any known sites, there is the potential to unearth previously unknown sites**.** In the event that previously unidentified cultural or paleontological resources are encountered during construction, there will be no further excavation or disturbance of that area. The contractor will avoid the materials and their context. The FHWA or County Project Engineer will be notified immediately. A qualified archaeologist will evaluate the find to determine its historical or archaeological eligibility. If the find is determined to be an eligible historical or archaeological resource, the archaeologist will make recommendations for appropriate mitigation. Work in the area will not resume until the mitigation measures recommended by the archaeologist have been implemented.

Operation Phase

The operation of Hyampom Road is not expected to cause an impact to cultural resources because any impacts to cultural resources would have occurred during construction.

3.10.4 Cumulative Impacts

3.10.4.1 Alternative 1 - No Action

No direct cumulative impacts would occur with Alternative 1.

3.10.4.2 Alternative 2 – Reconstruction of Existing Alignment

Although no significant cultural resources have been identified in surveys performed for Segment 1, there is potential for unrecorded archaeological sites in this road segment. All transportation improvement projects (including the bridge replacement projects over Hayfork Creek) and the Elder Care facility are located in areas where previous cultural resources have been discovered. For projects within Nor-Rel-Muk territory in Trinity County, consultation with the Nor-Rel-Muk is conducted prior to construction, and excavation is required to stop and an archaeologist to be called to investigate in the event of an unexpected discovery during construction. The fuels reduction and logging projects and the mine reclamation project are also in areas that have the potential for cultural resource sites. Before these projects could proceed, they would have to go through the NEPA process, including analyzing the impacts to cultural resources.

Since cultural resources are non-renewable resources, loss of cultural resources incrementally reduces the number of surviving sites (and isolates). However, with proper mitigation, the data collected offers a rich understanding of local cultural resources. Because the Proposed Project combined with other projects include consultation and documentation of all eligible sites, there may be cumulative impacts, but not adverse effects on cultural resources.

3.10.5 Mitigation Measures

3.10.5.1 Alternative 2 – Reconstruction of Existing Alignment

Consultation on the eligibility of the Segment 4 prehistoric site is ongoing. If the site is determined to be eligible, appropriate mitigation measures will be developed in consultation with the SHPO and implemented prior to construction.

The Nor-Rel-Muk Nation will also be notified of the construction schedule, and invited to visit the site prior to construction to view the Proposed Project limits. If construction is to occur in areas considered by the Nor-Rel-Muk Nation or Wintu Cultural Council to be likely to contain burials or other archeological resources, then the Nation or Council may assign a representative to monitor construction in that vicinity, at their own expense.

In the event that previously unidentified cultural or paleontological resources are encountered during construction, there will be no further excavation or disturbance of that area. The contractor will avoid the materials and their context. The FHWA or County Project Engineer will be notified immediately. A qualified archaeologist will evaluate the find to determine its historical or archaeological eligibility. If the find is determined to be an eligible historical or archaeological resource, the archaeologist will make recommendations for

appropriate mitigation. Work in the area will not resume until the mitigation measures recommended by the archaeologist have been implemented.

In the event that previously unidentified evidence of human burial or human remains are discovered, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains. The Trinity County Coroner must be informed and consulted, per state law. If the coroner determines the remains to be Native American, he or she will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent. They will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. Work in the area will not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission, and/or the most likely descendent have been implemented.

3.11 Hazardous Materials

Hazardous materials include chemicals and other substances defined as hazardous by federal and state laws and regulations. In general, these materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may have harmful effects on public health or the environment during their use or when released to the environment. Hazardous materials also include waste chemicals and spilled materials. The Proposed Project has been assessed for its potential to release hazardous materials to the environment during construction or operation of the project.

3.11.1 Affected Environment

To determine the existing condition of the proposed Project Vicinity prior to construction, an *Initial Site Assessment* (ISA), including a site reconnaissance of Segments 2, 4, and 5, and a regulatory agency database review was performed in August 2003 in accordance with American Society for Testing and Materials (ASTM) Standard E 1527-00, Standard Practice for Environmental Site Assessment (CH2M HILL 2003d). In the ISA, environmental conditions were assessed for the Proposed Project site. Environmental conditions are defined in the ASTM standard as "the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws."

In addition, for Segment 3, a *Preliminary Environmental Assessment Report* (PEAR) was performed by Hughes Environmental in 1999. A site reconnaissance was performed of Segment 3, and revealed no evidence indicating a significant potential for encountering hazardous materials or petroleum product contamination that could affect the Proposed Project. Segment 3 is located in an undeveloped rural environment, with no evidence of previous use and therefore it is not anticipated that hazardous materials are present (Hughes 1999).

Jan Smith with the Trinity County Transportation Department was also contacted in June 2005 regarding any changes that may have occurred in Segments 2, 3, 4, and 5 since both the PEAR and the ISA were performed. Per Ms. Smith, no construction or remediation has been performed in any of these segments since 1999 (Smith 2005). However, on May 14, 2005, there was a release of kerosene from the tank at the Rodrick Senior Center (the new Elder Care Center) at the intersection of Hyampom Road and SR 3, that impacted soil and groundwater. This release could possibly affect Segment 1, although it is not near an area to be excavated nor is it close to other road segments.

The Environmental Data Resources, Inc. (EDR) records search identified no sites within 1.6 km (1 mi.) of the existing road (all segments) that had recorded environmental incidents that had been reported to the state or County. The results of a site reconnaissance in 2003 in the immediate vicinity of Segments 2, 4, and 5 of Hyampom Road revealed no obvious locations where unrecorded hazardous materials or hazardous waste activities may have occurred. No active use of hazardous materials was observed on, or within, 9 m (30 ft.) of the existing road. There is the potential for use of hazardous materials at a small storage shed at 10.1 km (6.3 mi.), and three houses located at 5.9, 8.7, and 9.8 km (3.7, 5.4, and 6.1 mi.). The storage shed and three houses are all located within 30 m (100 ft.) of the existing road.

There was no evidence of recognized existing environmental issues at the site as a result of past or present land use practices. Potential indicators of the use, generation, and storage of hazardous substances were observed at four locations adjacent to the site. There was no evidence of release of hazardous substances at the site.

Soils contaminated by unreported leaks or spills of hazardous materials or wastes could potentially be present in areas adjacent to Hyampom Road, but soil contamination is usually confined to a relatively small area near the source of the spill. Also, there is potential for lead-based paint on Little Creek Bridge due to its age and the confirmed presence of lead-based paint on Nine-Mile Bridge.

3.11.2 Environmental Consequences

3.11.2.1 Alternative 1 - No Action

There would be no impacts from hazardous materials if Alternative 1 – No Action was chosen as the preferred alternative.

Currently, soil contaminated by unreported leaks or spills of hazardous materials or wastes could potentially be present in the Project Vicinity. Potential sources of hazardous material spills directly along Segment 2 include a small abandoned storage shed and three houses. Segments 3, 4, and 5 did not have any disturbed areas such as residences or storage sheds adjacent to the existing roadway. Under Alternative 1, the potentially contaminated soil along Segment 2 would remain in place.

3.11.2.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

During construction activities, environmental media (such as soil, water, air, and vegetation) could potentially be impacted by hazardous materials. Hazardous materials to be used in conjunction with construction of the Proposed Project may include:

- Fuel for construction vehicles (i.e. diesel fuel)
- Lubricants for construction vehicles
- Concrete/asphalt batch materials for roadbed and paving
- Paints (for roadway marking)
- Cleaning solvents (for equipment cleanup)
- Miscellaneous construction materials, such as adhesives, primers, etc.
- Excavated contaminated soils
- Lead-based paint chips from bridges

These materials will have the potential to be released into the environment during construction activities as a result of spills, leaks, rainwater runoff, or airborne (wind) dispersal. Fuel and oil releases are most likely to impact soil and water; air would be most affected by particulate windborne materials, such as dry cement or dust from contaminated soil, or by releases of volatile organic materials from paints or solvents; and vegetation could be impacted by either airborne releases or direct contact with spills. In addition, some of these materials may generate residual wastes that must be managed on site as hazardous materials until they can be properly disposed of off-site. While stored at the construction site, these wastes have the potential to be released in a similar manner as described above. Environmental impacts would vary, depending on both the type and quantity of hazardous materials. Impacts for hazardous materials are discussed in greater detail below.

Fuels and Lubricants for Construction Vehicles

The volume of fuel and lubricants required to be used is dependent upon the number and types of equipment used, as well as the duration of the construction project. Normal operation of equipment is not likely to generate large quantities of these materials as waste, as these materials will be consumed for the most part during construction activities. BMPs would include protecting any fuel storage areas with secondary containment one and one-half times the size of the original container, and storage and fueling areas will be surrounded with a berm and lined with plastic or other impermeable barriers consistent with the requirements from the RWQCB. Alternative fueling of equipment on the road may be accomplished with fuel trucks. Minimal environmental impacts are anticipated for fuels and lubricants employing these BMPs.

Concrete and Asphalt Batching Materials for Roadbed and Paving

Temporary concrete and asphalt batch materials will be located a minimum of 30 m (100 ft.) from any water way and if possible located in an area shielded from the wind. Concrete, more than asphalt, contains fine particulate materials, such as cement and sands. These materials need to be contained to prevent their potential contact with air and water sources. Materials such as concrete and asphalt, once cured, will be immobilized and incapable of leaking or spilling into the environment, and thus no environmental impacts are anticipated for the cured materials.

Paints, Cleaning Solvents, and Miscellaneous Construction Materials

The quantity of paints, solvents, adhesives, and other man-made construction materials will be relatively small; therefore, minimal environmental impacts are anticipated from these materials. During construction activities, wastes such as used and leftover paints, solvents, and oils will be generated on a temporary basis. The construction contractor will be considered the generator of hazardous wastes at this site during the construction period and

will be responsible for proper waste handling, storage, disposal, record keeping, and employee training. Any hazardous waste produced will be transported by a licensed hazardous waste transporter, and disposed of at a licensed hazardous waste disposal facility. Therefore, the impacts from waste management at the proposed site will be minimal.

Excavated Soil

Excavation activities may encounter soil or water contaminated by spills from unrecorded previous activities using hazardous materials at the site of the Proposed Project. Potential sources of hazardous materials spills directly along Segment 2 include a small abandoned storage shed and three houses. Segments 3, 4, and 5 did not have any disturbed areas such as residences or storage sheds adjacent to the existing roadway. As excavation occurs, there is a small potential for contaminated soil to become airborne in the form of dusts. As it is unknown if there is contamination, it is not possible to predict the amount of exposure to the environment that could occur during excavation activities. However, using BMPs and design controls as outlined in mitigation section 3.11.4, the potential environmental impacts would be minimized. Water or chemical suppressants will be used as necessary to reduce dust.

Bridge Removal

A bridge is located at KP 8.9 (MP 5.5). This bridge, known as Little Creek Bridge, is constructed of wood, metal, and concrete. The metal is painted while the wood and concrete are not painted. Due to the age of the bridge, the paint may be lead based; however, the paint is tightly adhered to the metal, and is not easily scraped off. No paint samples were collected or analyzed for confirmation of lead content. To avoid the potential release of this paint into the water or the environment during removal of the bridge, the metal portions of Little Creek Bridge will be segregated and hauled to a disposal site legally authorized to accept materials containing lead-based paint. There will be no on-site sand blasting for the bridge replacement.

Lead Based Paint Removal from Nine-Mile Bridge

A second bridge, Nine-Mile Bridge, is located approximately at KP 12.8 (MP 8.0). This bridge is constructed of wood, metal, and concrete. The metal is painted with lead-based paint. The bridge will be sanded and repainted with a less toxic paint system. During the sanding, a containment system will be constructed around the bridge to prevent airborne heavy metals from escaping into the surrounding environment (air, water, and soil). The paint debris and portions of the contaminated containment system (visqueen, personal protective equipment [PPE], etc.), will be segregated and hauled to a disposal site legally authorized to accept materials contaminated with lead-based paint. However, using design controls as outlined in mitigation section 3.11.4, the potential environmental impacts would be minimized (Trinity County 2003b).

Operation Phase

After construction, during operation of the new roadway, there will be no need for the continuous use of hazardous materials or generation of waste at the Proposed Project site. There will be no permanent structures constructed as part of the Proposed Project for the ongoing storage and use of hazardous materials. The paved roadbed will require periodic maintenance, including trimming vegetation, clearing ditches, repair, repainting pavement

markings, and snow removal. This will involve mostly physical maintenance methods, but may also include the use of chemicals such as road salt, asphalt, sealant, and paint. These materials would not differ much, if at all, from materials currently used for maintenance of the existing roadway. Therefore, the impacts from use of these materials are considered minimal.

3.11.3 Cumulative Impacts

3.11.3.1 Alternative 1 – No Action

There will be no cumulative impacts associated with the No Action alternative.

3.11.3.2 Alternative 2- Reconstruction of Existing Alignment

The two bridge replacement projects and Trinity County's Hyampom Road project on Segment 1 have the same potential impacts as the Proposed Project along Segments 2, 3, 4, and 5. Other projects in the area include fuels reduction and logging projects, a mine reclamation project, a winery processing and tasting facility in Hyampom, an 8-unit resort at the Hyampom airport, and a senior housing project located at SR 3 in Hayfork. With proper handling of hazardous materials on the other projects, as well as this one, the Proposed Project will not result in cumulative impacts that could adversely affect public health and safety or the environment.

3.11.4 Mitigation Measures

3.11.4.1 Alternative 2 – Reconstruction of Existing Alignment

The Proposed Project will mitigate any potential adverse impacts by complying with the requirements of applicable laws, ordinances, and regulations and by applying design, construction, and operational BMPs that will be protective of the environment. The BMPs are addressed in further detail within Section 3.8, Water Resources. These BMPs will include but not be limited to:

- Concrete effluent or slurry will be isolated from flowing water by cofferdams or stream diversions.
- Concrete washout areas will be constructed.
- Equipment staging areas will be designated for all fueling, storing, and washing/cleaning activities. Staging areas will be located a minimum of 7.6 m (25 ft.) distant from aquatic habitats or protected by a berm or other barrier between the staging area and the water resources of the Project Vicinity.
- Contractor will be required to conform to Chapter 6.95 of the California Health and Safety Code in developing a Hazardous Materials Business Plan for storing over 500 pounds of hazardous materials (for concrete and asphalt batch plants).
- When not in use, all fine grain (cement, sands) concrete and asphalt batch plant materials will be covered or contained to reduce air dispersal and rain runoff. Batch plants should be located a minimum of 30.5 m (100 ft.) from aquatic habitats or water resources of the Project Vicinity.

- All earthwork activities will be planned and conducted to minimize the duration that soils would be left unprotected. The extent of the area of disturbance necessary to accomplish the Proposed Project will be minimized. Exposed surfaces should be frequently sprayed with water to control dust.
- Areas where batch plants are located will be regraded to follow natural contours and revegetated.

Construction Mitigation Measures

During the construction phase of the Proposed Project, hazardous materials will be used and waste will be generated in small quantities.

General mitigation measures that may be employed during construction of the Proposed Project include:

- Dust suppression or watering in excavated areas and for storage piles as warranted.
- Removal of any contaminated soil encountered for off-site disposal at an appropriate facility.
- Fuel storage and vehicle refueling in spill containment areas.
- Protecting any fuel storage areas with secondary containment one and one-half times the size of the original container, storage areas will be surrounded with a berm and lined with plastic or other impermeable barriers.
- Storage of materials and wastes in enclosed, secured areas.
- Spill control equipment onsite, sufficient to contain the capacity of the largest hazardous material container onsite.
- Provide portable sanitation facilities sufficient for the number of workers on site.

Mitigation measures with respect to the removal and replacement of Little Creek Bridge:

- To avoid the potential release of lead-based paint into the water or the environment during removal of the bridge, the metal portions of Little Creek Bridge will be segregated and hauled to a disposal site legally authorized to accept materials containing lead-based paint.
- There will be no on-site sand blasting for the bridge replacement.

Mitigation measures with respect to the repainting of Nine-Mile Bridge (Trinity County 2003b):

- To avoid the potential release of lead-based paint into the water or the environment during rehabilitation of the bridge, a containment system will be constructed around the bridge prior to sandblasting and painting.
- Soil and air around the work area will be monitored to verify the effectiveness of the containment system.

- Lead-based paint chips and debris will be hauled to a disposal site legally authorized to accept materials containing lead-based paint.

In addition, FHWA, Trinity County, or the construction contractor will prepare a SWPPP prior to commencement of construction activities for all hazardous materials used or stored on site and all wastes that may be generated during construction. For the management of unexpected spills during construction activities, the SWPPP will contain an Emergency Spill Containment Plan. The SWPPP will contain, at a minimum, the following:

- A description of all hazardous materials used on site
- Methods of managing each hazardous material
- Soil and water testing methods, if required
- Methods of transportation, storage, handling, and disposal of hazardous materials
- Disposal requirements and sites
- Recycling and waste minimization/reduction plans
- Emergency Spill Containment Plan

Although there are no obvious instances of existing hazardous materials/waste apparent in the Project Vicinity, there are three residences and a storage shed in Segment 2 that may have had hazardous material spills, or used hazardous substances in relatively close proximity to the roadway. Segments 3, 4, and 5 did not have residences or storage sheds adjacent to the existing roadway. Due to the presence of such sites in the Project Vicinity, a Contingency Plan will be prepared to address the actions that will be taken during reconstruction of the roadway should unexpected contaminated soil or groundwater be discovered. The Plan will contain, at a minimum, health and safety considerations, handling and disposal of wastes, reporting requirements, and emergency procedures. The Contingency Plan is similar to the Emergency Spill Containment Plan to be prepared for the SWPPP, but addresses the management of unexpectedly encountered contaminated soil or groundwater.

3.12 Visual Resources

Visual resources are the natural and cultural features of the landscape that can be seen and contribute to the public's enjoyment of the environment. Visual resource analysis or aesthetic impacts are generally defined in terms of a project's physical qualities and the extent to which the project's presence would change the perceived visual quality of the environment in which it would be located.

This section was prepared following the FHWA's *Visual Resources Manual* as well as the USFS visual quality objectives. The preparation of visual resources analysis included site visits, studying aerial maps, and reviewing draft engineering drawings and visual simulations of the Proposed Project.

3.12.1 Affected Environment

The landscape of each Segment is briefly described in terms of visual elements, such as open versus constrained views and some general land use categories, but focuses on the high, medium, or low visual quality and viewer sensitivity to change within each Segment.

Many factors contribute to the visual environment, but the FHWA's *Visual Impact Assessment for Highway Project* (1981) defines visual quality into three key categories:

- **Vividness**: The memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.
- **Intactness**: The integrity of visual order in the natural and man-built landscape, and the extent to which the landscape is free from visual encroachment.
- **Unity**: The degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.

3.12.1.1 Vicinity and Setting

The visual character of the Project Vicinity consists of moderate to steep hillsides and ridges vegetated with a variable mosaic of coniferous forest, oak woodlands, and brush vegetation. The tree canopy, Hayfork Creek and Hyampom Road are the dominant visual elements within the roadway corridor. Vegetation varies throughout the area, based on exposure, elevation, steepness and slopes and soils.

The roadway is generally narrow and windy. Due to the steep terrain, the roadway required considerable cutting into the hillside and filling over drainages. The mixed conifer forest vegetation is mature and growing over the roadway in several locations. The roadway is indicative of a forest road with few structures, no railings, few signs, several USFS road connections, and heavy vegetation.

3.12.1.2 Regulatory Setting

Visual Resources are managed primarily by the STNF LMP. The USFS has established visual quality objectives for the degree of public concern in terms of sensitivity levels and depending on the quality of the landscape and the viewing distance of the landscape. The key visual quality objective for the Project Vicinity is the "Partial Retention" which is achieved when "management activities remain visually subordinate to the characteristic landscape." The following forest goals direct visual quality management:

- Goal 37: Develop or expand opportunities for scenic drives and vista points
- Goal 38: Maintain a diversity of scenic quality throughout the Forests, particularly along major travel corridors, in popular dispersed recreation areas, and in highly developed areas

In addition, the USFS has recorded an intention to designate a portion of Hayfork Creek, which parallels Hyampom Road, as a Wild and Scenic River. Although Hayfork Creek is eligible for Wild and Scenic River designation, as of January 2006 it had not received that designation, and the USFS does not have a Wild and Scenic River Plan for Hayfork Creek. There are no unique or visually outstanding natural or manmade features within the Project Vicinity. The Proposed Project would not conflict with the possible future Wild and Scenic designation for Hayfork Creek.

SR 299 and SR 3 from Weaverville north are designated Scenic Byways. The Proposed Project would not be visible from either highway. Hyampom Road is not designated as a

California or County scenic highway. However, Trinity County considers Hyampom Road eligible for designation as a County Scenic Roadway, and therefore is concerned about preserving visual quality of view sheds as evidenced by:

- Objective 3.2: Protect the aesthetic and cultural resources of the Hayfork Community Plan Area. The supporting policy states, "encourage public and private land managers to consider potential impacts to the view shed around the Hayfork basin while managing timberlands." (Trinity County 1996)
- Circulation Element Objective 1.15: "Achieve scenic roadway designation for appropriate State and County highways/roads."
- Policy 1.15.A: "The County Scenic Roadways program will consist of specific right-of-way zoning per the County Scenic conservation Overlay Zoning District. At the time that Community Plans or the General Plan Land Use Element are developed or updated, identify appropriate roads (or road segments) to be designated as County Scenic Roadways. Factors to consider include current viewshed condition, resource utilization needs and the need for shaded fuel breaks." Hyampom Road is listed as eligible for designation as a County Scenic Road.

3.12.1.3 Visual Environment

Viewers along Hyampom Road include residents traveling to and from Hyampom, few of whom receive access directly off of Hyampom Road. Other travelers on Hyampom Road include routine delivery people, tourists seeking fishing and outdoor adventure in the STNF as well as visitors to Hyampom and the Bar 717 camp. These viewers are expected to be moderately sensitive. Because viewers are predominantly travelers (driver or passengers) in an automobile or bus, the view is limited by the window parameters of the vehicle. In steep areas, the typical view reaches up to 6 to 9 m (20 to 30 ft.) up the adjacent hill side.

Comments received from some residents have expressed strong appreciation for vegetation and rock-outcrops along Hyampom Road and the curvy nature of the roadway. Others have expressed anxieties about how portions of the roadway seem too narrow and too steep.

Figures 18 through 23 are photographs within the Project Vicinity (August 2003), illustrating typical views of each Segment (refer to the photo key map, Figure 17). Forward views are shortened by the curvy nature of the roadway as illustrated in Figures 18a-c and 19a, b. Views down slope are generally limited by vegetation growth, except in some portions of Segments 4 and 5, where steep slopes permit occasional vistas. The following subsections describe the visibility and visual quality of each segment of the Proposed Project.

Segment 2

Segment 2 parallels Hayfork Creek, and is approximately 15 m (50 ft.) away and 3 to 6 m (10 to 20 ft.) above spring water flow levels as seen in Figure 18a (Photostation location #2 in Figure 17). The roadway is relatively flat in this segment. Views of the water and surrounding landscape are somewhat inhibited by the riparian vegetation, such as the portion of the road near one private residence, as viewed in Figure 18b (Photostation location #3 in Figure 17). Adjacent and south of Hyampom Road, low-growing vegetation covers most areas on existing slope embankments. A few portions of the segment are further from Hayfork Creek and therefore do not have slopes adjacent to the roadway, such as near

the Little Creek Bridge (See Figure 18c [Photostation location #4 in Figure 17]) and the private property where deciduous trees have re-established themselves and consequently narrowed the view corridors (see Figure 18b (Photostation location #3 in Figure 17]). Generally, the embankments and natural hillsides to the south are 30 to 45 degree slopes. This segment has a history of flooding and varying creek flows which has resulted in willow vegetation growing on the banks and in erosion down the embankment toward the creek. This segment contains pleasant views of Hayfork Creek and available viewsheds across the river to forested mountains. However, this is not unique within this region; therefore, it has a moderate vividness quality. While there are a few residences in this segment, the rural environment is intact and almost free of encroachment. Finally, this segment has a high degree of unity in that the river and riparian vegetation with both open and narrow views remain coherent and harmonious.

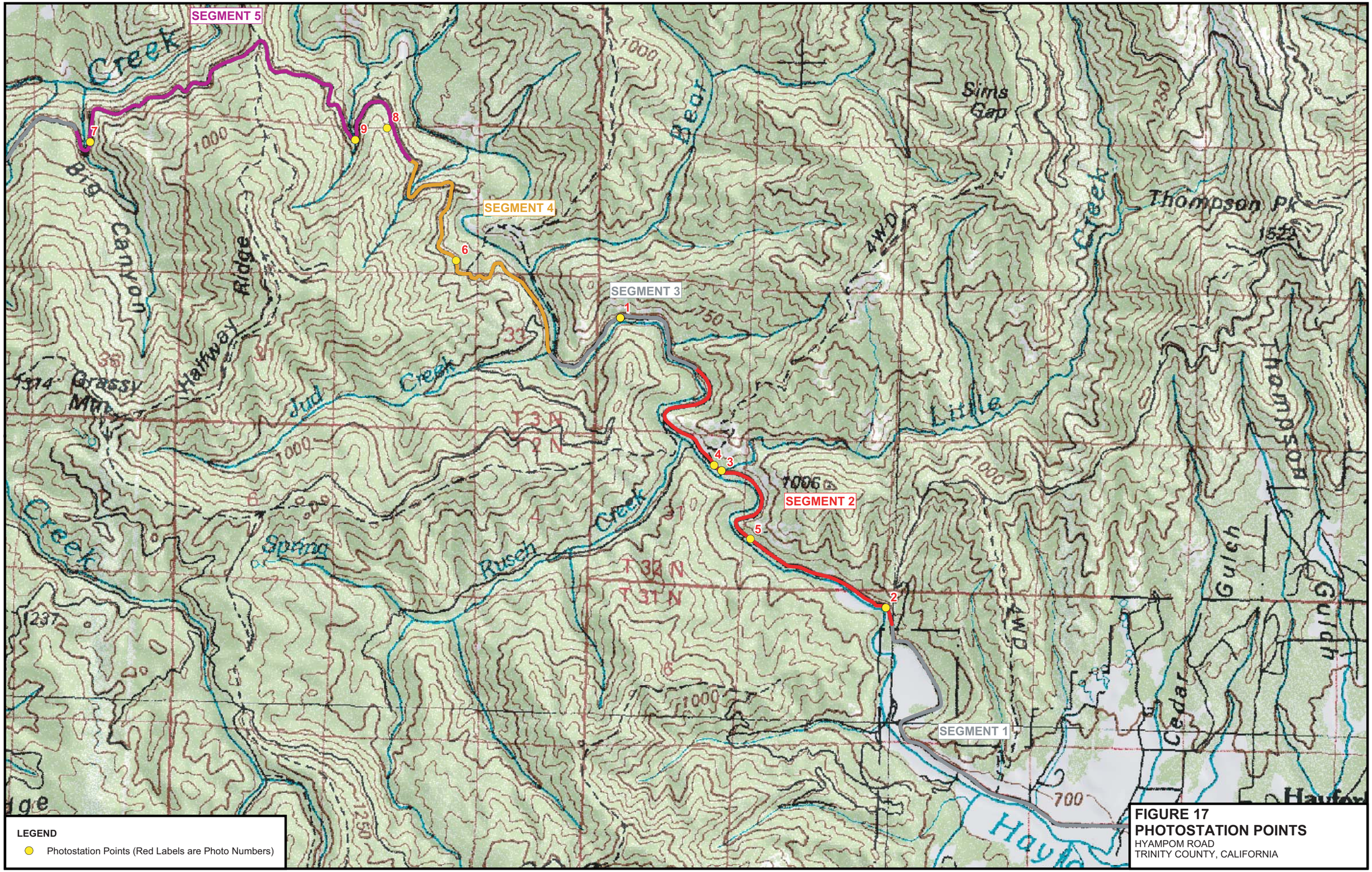
The overall scenic quality is moderate; however, slope embankments are visible and therefore, roadway improvements will be consistent with current scars along the roadway.

Segment 3

Segment 3 begins approximately 11 km (7 mi.) west from Hayfork. Similar to Segment 2, Segment 3 roadway alignment parallels Hayfork Creek approximately 5 to 20 m (15 to 65 ft.) above the creek bed. The roadway is relatively flat in this segment along the creek with high, steep cutbanks on the upslope side and steep slopes below the road to Hayfork Creek as seen in Figure 19a and 19b (Photostation location #1 in Figure 17). Subsequently, the terrain becomes steep and mountainous. Like Segment 2, this segment has a history of flooding on the eastern end and varying creek flows which has resulted in willow and riparian vegetation growing on the banks toward the creek. This segment contains pleasant views of Hayfork Creek and available viewsheds across the river to forested mountains. However, this is not unique within this region; therefore, it has a moderate vividness quality. Finally, this segment has a high degree of unity in that the river and riparian vegetation with both open and narrow views remain coherent and harmonious. These components result in a moderate visual quality.

Segment 4

Segment 4 begins about 91 m (300 ft.) west of Nine-Mile Bridge. After crossing Nine-Mile Bridge, Hyampom Road is positioned south of Hayfork Creek and climbs quickly, which eliminates visual access to Hayfork Creek within less than 1 km (0.6 mi.). The topography and dense vegetation keep views within the roadway (see Photostation 6 in Figure 20a). Generally, existing slope cuts of greater than 50 percent and fill slopes on the downward side are visible throughout Segment 4, but vegetation has re-established and grows over the roadway to limit views to the roadway. Also, many of the uphill slopes within Segment 4 are unvegetated and have rock slope faces. On the downhill side of the roadway, tall trees block the views of the surrounding scenery. Many of these trees are located below the fill line of the proposed roadway construction area. Because the views are constrained, the Segment has low vividness. Also the roadside cuts and fill indicate an encroachment on the natural terrain and therefore this segment has a moderate intact quality. The vegetation is a lush mixed conifer forest, resulting in a moderate to high unity. These components result in a moderate visual quality.



LEGEND

- Photostation Points (Red Labels are Photo Numbers)

FIGURE 17
PHOTOSTATION POINTS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

176402.30.E2.04•T022004002SFO•Figure 17•10/17/05•ez

FIGURE 18a
Hyampom Road parallels Hayfork Creek in Segment 2 (Photostation #2)

FIGURE 18b
Riparian vegetation opposite the residence blocks views of Hayfork Creek (Photostation #3)

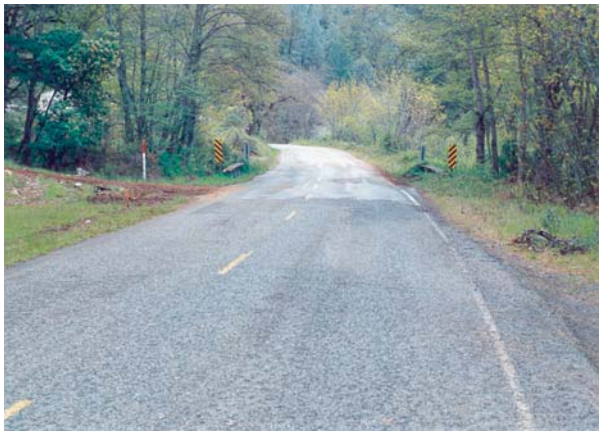


FIGURE 18c
Hyampom Road has flat terrain at Little Creek Bridge (Photostation #4)

FIGURE 18d
Cut slopes in Segment 2 are generally 30 to 45 degrees (Photostation #5)

FIGURE 18
PROJECT VIEWS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

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FIGURE 19a
Hyampom Road looking east in Segment 3
(Photostation #1)

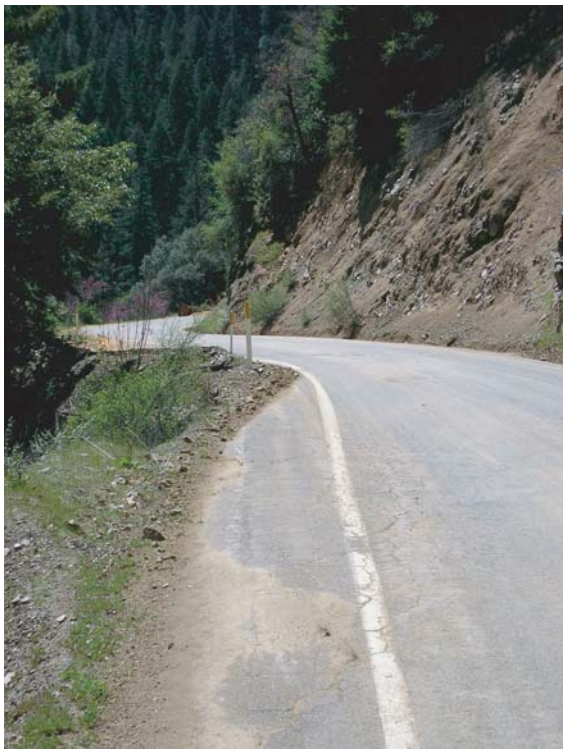

FIGURE 19b
Hyampom Road looking west in Segment 3
(Photostation #1)

FIGURE 19c
Nine-Mile Bridge showing downstream
sides of pier walls

FIGURE 19
PROJECT VIEWS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

FIGURE 20a
Dense vegetation limits views from the roadway in Segment 4 (Photostation #6)

FIGURE 20b
Segment 5 is predominantly a narrow one-lane roadway with steep slopes and cliffs (Photostation #7)

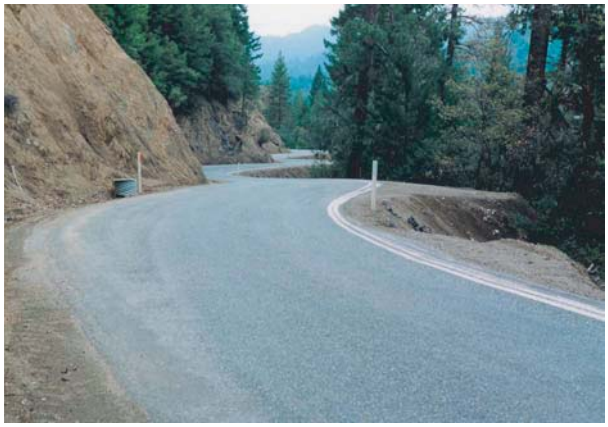

FIGURE 20c
One lane and poor sight distances in Segment 5 increase the potential for head-on collision (Photostation #8)

FIGURE 20d
Hyampom Road travels in and out of ravines in Segment 4 & 5, causing tight radius turns (Photostation #9)

FIGURE 20
PROJECT VIEWS
HYAMPOM ROAD
TRINITY, CALIFORNIA

CH2MHILL

FIGURE 21a
Existing conditions for Segment 2 (Photostation #2)

FIGURE 21b
Visual Simulation of proposed project in Segment 2

FIGURE 21
EXISTING AND PROPOSED CONDITIONS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

FIGURE 22a
Existing conditions at most narrow portion of Segment 5
(Photostation #7)

FIGURE 22b
Visual Simulation of Segment 5

FIGURE 22
EXISTING AND PROPOSED CONDITIONS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

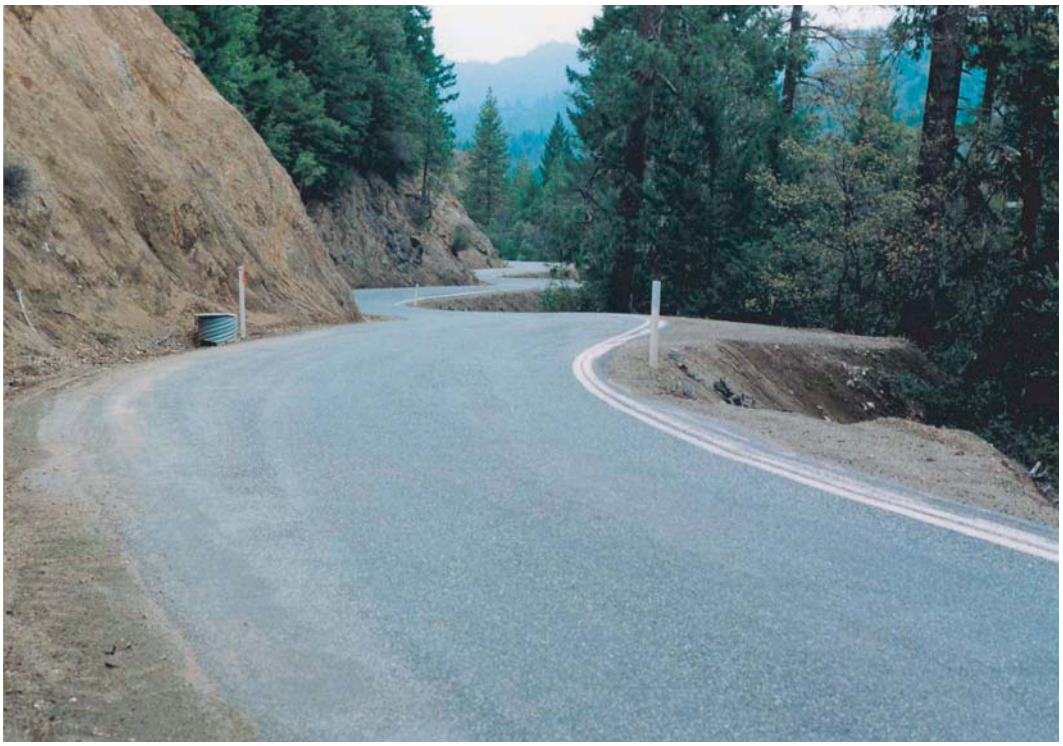

FIGURE 23a
Existing conditions revealing frequent horizontal curves in narrow 1 lane portion of Segment 5 (Photostation #8)

FIGURE 23b
Visual Simulation of Segment 5

FIGURE 23
EXISTING AND PROPOSED CONDITIONS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

Segment 5

Segment 5 contains long portions of narrow one-lane roadway with no shoulders and extremely steep slopes above and below the roadway (see Figure 20b [Photostation location #7 in Figure 17]). Both sides of Hyampom road contain mature stands of mixed conifer and hardwoods. Little to no vegetation has been able to take hold on existing cut slopes, which are eroding and depositing debris on the roadside.

For viewers that are used to the severe terrain, it is an intimate, personal, and highly memorable experience. These viewers are very sensitive to change. However, for those that are not accustomed to the potential danger, the scenic qualities are lost on the need to maintain concentration on a potentially dangerous driving experience. The apparently dangerous terrain limits view opportunities for many vehicle passengers, but for the seasoned driver, the terrain does afford views over the Hayfork Creek valley toward adjacent ridge lines. The environment surrounding the roadway contains outcroppings, dramatic trees that cling to steep soil banks, as well as ravines with a variety of plants and visual interest. The most memorable portion of the roadway is a particularly narrow and steep section with a view across a deep gorge, which results in a high vividness rating. This segment, like Segment 4, has steep cut and fill slopes which result in a low to moderate intactness. Due to the discontinuity of the viewsheds and narrow roadway, the unity is low to moderate. Overall, the visual rating is moderate to high for some viewers while other viewers may find this segment to have low visual quality due to the perception of unsafe conditions.

3.12.2 Environmental Consequences

This analysis of the potential visual effects to result from the Proposed Project is based on field observations and review of the following information: local planning regulations, aerials, project drawings, and photographs of the Project Vicinity. Site reconnaissance was conducted on October 29, 2003 to view the site and surrounding area, identify potential key observation points, and take representative photographs of existing visual conditions. A single lens reflex (SLR) 35-millimeter (mm) camera with a 50-mm lens (view angle 40 degrees) was used to shoot site photographs.

Selected half-page photographs represent "before" conditions. A corresponding set of photographs simulate the relative change due to the Proposed Project to explain the representative changes to the roadway and effects on the visual quality (Figures 21a and 21b [Photostation #2], 22a and 22b [Photostation #7], 23a and 23b [Photostation #8], 24a and 24b [Photostation #9]).

The analysis of the Proposed Project's impacts was based on evaluation of the changes to the existing visual resources that would result from the Proposed Project's construction and operation.

In addition, the analysis evaluates whether the Proposed Project would conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental (with emphasis on visual) effect.

3.12.2.1 Alternative 1 - No Action

This alternative will not result in a change to the visual quality of the Proposed Project environment. However, a sudden environmental event, such as an earthquake, landslide, flood, storm event, or fire could result in a major change to the roadway and the surrounding visual environment.

3.12.2.2 Alternative 2 - Reconstruction of Existing Alignment

Construction Phase

Construction will temporarily impact the visual appearance of the Hyampom Road. Removal of up to 96 hectares (237 ac.) of forest habitat and vegetation, excavating, and raising and widening the roadway in all segments will temporarily disrupt the environment to either side of the road and change the scenery. Staging areas will include storing construction equipment, and piling and potentially crushing rock and road bed materials. Residents and travelers along Hyampom Road will experience the visual intrusion of large construction equipment and the potential dust that accompanies construction. These activities are not compatible with the existing forested and solitary scenery. Construction is expected to last 4 to 6 years. The construction activities are expected to be concentrated over a 4- to 6-month timeframe each year, with construction impacts being temporary in nature. Some segments will require two construction seasons to complete.

The USFS land use management prescription for the Project Vicinity is Roaded Recreation which contains visual resource objectives. Hyampom Road is designated as partial retention on the adopted VQO map. Road reconstruction is one of the allowed activities under this management prescription, and the Proposed Project is not expected to conflict with USFS VQO.

Operation Phase

Refer to Figures 21a and 21b, 22a and 22b, 23a and 23b, 24a and 24b, which show the before and the after-project simulations of operational conditions approximately 5 years following roadway construction.

Segment 2

Figures 21a and 21b (Photostation #2) illustrate the changes in Segment 2. The roadway is raised up and repositioned further away from Hayfork Creek. This shortens the point of the slope in the distance of this image. The appearance of the finished roadway following construction will be similar to the existing roadway for the traveling passenger. In Segment 2, the slopes are gradual enough for vegetation to be re-established. Views of Hayfork Creek will not be substantially altered from current vegetation or creekside character. The roadway project does not conflict with the USFS goal to recommend that Hayfork Creek be designated as Wild and Scenic.

The Proposed Project does not diminish the visual quality of Segment 2. Five years from construction, the traveler will have difficulty discerning roadway adjustments. This change does not conflict with USFS or Trinity County goals to develop scenic drives or will it alter the diversity of scenic qualities. Furthermore, there will be minimal effects on the current moderate visual quality of this segment.

FIGURE 24a
Existing conditions of Dinner Gulch (Photostation #9)

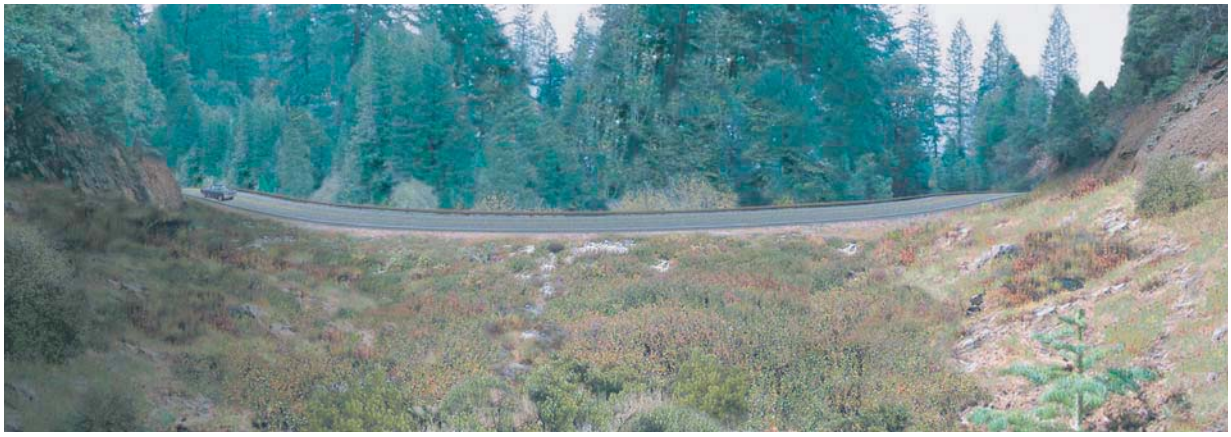

FIGURE 24b
Visual Simulation of more gradual curve at Dinner Gulch

FIGURE 24
EXISTING AND PROPOSED CONDITIONS
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

Segment 3

The Proposed Project within Segment 3 consists of repainting and widening the Nine-Mile Bridge; realigning, widening and raising the profile of Hyampom Road, replacing the James and Jud Creek culverts with bridges or bottomless arch culverts, and installing rock slope protection and retaining walls along Hayfork Creek. The finished Proposed Project will result in a road and bridges with a newer appearance, with fresh paint and pavement. Trees will be removed from the construction limit which will result in fewer large trees (fir, pine and oak) adjacent to the roadway. However, due to the surrounding setting, large trees will continue to dominate the overall viewshed. Views along the roadway will continue to retain their existing characteristics of steep hillsides and ridges vegetated with a variable mosaic of coniferous forest, oak woodlands, and brush. Riparian trees removed as part of construction will be replaced such that in 5 years following construction, views of Hayfork Creek will be the same or enhanced, with the establishment of new vegetation. Similar to Segment 2, changes from the Proposed Project will not conflict with USFS or Trinity County goals to develop scenic drives, will not alter the diversity of scenic qualities, and will not affect Hayfork Creek's potential designation as a Wild and Scenic River. The roadway improvements will result in minimal effects on the current moderate visual quality of this segment.

Segment 4

Although Figures 24a and 24b (Photostation #9) are in Segment 5, they convey typical adjustments to tight horizontal curves that currently follow the ravine contours. The curve radius forces long traverses at very slow driver speeds. The Proposed Project proposes to pull out the curve from the ravine for a gentler curve radius, allowing more consistent traveling speeds and enlarging the road. There are six ravines (including Segment 5) where the roadway will be adjusted using similar techniques to increase the curve radius of the roadway. The drainage would be extracted from the existing culvert, thereby exposing the waterway until it reaches the new roadway location, thus providing longer views of the drainage. The fill in the ravine would be sculpted to provide a channel for the drainage and blended with existing cut slopes, so that the slopes appear natural around the ravine and perhaps reduce the scar of existing slope cuts. The slopes are planned to be re-seeded to re-establish native plants or duff and downed logs may be placed in some areas as wildlife habitat. The down slope from the roadway will be close to vertical and in some portions a retaining wall creates 90 degree slopes for a short distance. This area is not visible to travelers. However, there will be fewer trees on the inside of the curve of these ravines for the first 5 to 15 years, until they can re-establish.

Other portions of the roadway will not be noticeably different from existing conditions. Most of Segment 4 is nearly two lanes wide. Widening will be slight (less than 5 ft. on average), and cut and fill slopes will be comparable to existing conditions. Changes will include an inside curb to direct the sloughing of hillside material and seasonal rain run-off from entering the roadway, and fewer trees overhanging the roadway.

The roadway improvement in Segment 4 is consistent with STNF USFS goals to develop a scenic drive. Improvements will remove vegetation away from the road that may allow points for vista views. The area cleared for construction on slopes will be reseeded, and are expected to be revegetated with low scrub materials within 5 years where slopes permit. This will reduce the construction scars while maintaining a diversity of vegetation and

scenic opportunities. Consistent with Trinity County's goal, the Hyampom roadway improvements incorporate minimization of visual impacts on the viewshed while maintaining access to forest resources. There are few views down to Hayfork Creek and therefore improvements in Segment 4 would not conflict with the USFS goal to recommend that Hayfork Creek be designated as Wild and Scenic. The result will not affect the vividness, intactness or the unity of this segment, and therefore it will maintain moderate visual quality.

Segment 5

Segment 5 will experience the biggest change from current conditions. This narrow one-lane Segment (as narrow as 3.3-m [10-ft.] wide in some sections) will become two lanes, with freshly cut rock-outcroppings and less vegetation until it can re-establish. The cut slopes would emulate existing slopes to the extent possible within the viewshed of the vehicle passengers (refer to Figures 22a and 22b [Photostation #7]). Unstable uphill slopes will be stabilized with soil nail walls which are covered with textured concrete to aesthetically blend in with the existing natural rock and boulders. Refer to Section 3.14 (Construction) for a discussion of soil nail walls and photos of this type of rock treatment. The roadway will continue to be curvy, though more gradual, with views of mixed conifer forests and exposed earth and rock slopes (see Figures 23a and 23b [Photostation #8]). The Proposed Project may open vistas and views across Hayfork Creek and onto adjacent mountain ridges until vegetation on downward slopes matures.

Other elements of change will be a guardrail in some sections, doubling the width of pavement and drainage curbs (refer to Figures 22a and 22b [Photostation #7]), and the addition of centerline striping. The effects of reduced vegetation and widening pavement is balanced with safer driving conditions that allow relaxed viewing with longer site distances, reduced potential for head-on collisions, and open vistas down slope.

While roadway construction will be changing the overall dimensions and feel of the single-lane roadway in Segment 5, the results will be consistent with STNF USFS's goal of developing scenic drives and vista points. Also, consistent with Trinity County, the roadway will further the goal of improving viewsheds among the STNF USFS timberland.

There are few views down to Hayfork Creek and therefore improvements in Segment 5 would not conflict with the Wild and Scenic designation for the Hayfork Creek. For those drivers that enjoy the challenge and potential solitude of a single-lane road, the change may be abrupt at first. However, the two-lane roadway in this segment will continue to have steep slopes on either side and many horizontal curves. The vegetation will re-establish and where possible, the cut material will be used to blend in old cut scars and reduce the severity of the cut slopes.

For some sensitive viewers that are familiar with the area and comfortable with the drive, the vivid nature will change and their view of intactness will be affected, thus reducing their feeling of overall visual quality from high to moderate. However, for tourists, and other visitors, the views will be improved, and their ability to see the beauty of this high roadway will be improved. The ability to see beyond the roadway in steep sections will create memorable views, intact vistas, and a unity with other segments of Hyampom Road. While aspects of the roadway will change, the altered segment will still contain a high visual quality rating.

Although all four roadway segments will be altered in various degrees, the net result will be a changed but nonetheless interesting and visually pleasing landscape, particularly following the re-establishment of vegetation. The Proposed Project will ultimately afford broader vistas and viewing opportunities of the forest resources and Hayfork Creek Gorge compared to the existing setting.

3.12.3 Cumulative Impacts

3.12.3.1 Alternative 1 – No Action

There will be no cumulative impacts associated with the No Action Alternative.

3.12.3.2 Alternative 2 – Reconstruction of Existing Alignment

Cumulatively, views of and from Hyampom Road have evolved over time. Beginning when the road was first cut, each generation has found a need to widen and improve the passage to Hyampom Valley. The shelf for the roadway was cut from the hillside for wagons and homesteaders who grew wheat in Hyampom Valley. Horse-drawn travelers were few. Then loggers found a need to cut trees along the roadway, change bridges from wood to concrete, and widen and pave Hyampom Road. Over the last half century, maintenance has continued to paint, patch pavement, and remove road cuts and embankments that slipped onto the roadway.

Currently, Trinity County plans to make safety improvements to Segment 1 and Caltrans is replacing a bridge on SR 3 near Segment 1. This will result in similar construction effects during a similar timeframe as the Proposed Project. The combined construction period may last up to 8 years. Construction effects are still determined to be temporary. While construction will be visually disturbing, due to the remote nature of the roadway and the sparse number of residences along the affected roadway, the visual effects of construction will not impact a large number of viewers. In addition, fuel reduction (logging) in various locations and a County bridge replacement project over Hayfork Creek are being implemented. The logging and bridge replacement project will be far enough removed from Hyampom Road to not be combined with the effects on visual resources from roadway reconstruction.

The cumulative impact of past and present projects is mountain cut and fill slopes, change in vegetation adjacent to the roadway and progressively larger roadway footprint. Ultimately, the cumulative effects on visual resources are improved access to scenic areas. Although the area will be altered in various degrees over time, the net result will be a changed but nonetheless interesting and visually pleasing landscape.

3.12.4 Mitigation Measures

3.12.4.1 Alternatives 2- Reconstruction of Existing Alignment

Construction Phase

The design of the Proposed Project, particularly along Segments 4 and 5, includes aesthetic treatments to blend soil nail walls with the surrounding cut slopes and rock outcrops (see Figure 25).

When construction needs to cease for periods longer than three days, all equipment will be stored in staging areas, and the roadway and roadsides will be cleared of litter and unnecessary road building materials, such as concrete, rebar, and posts.

Once the construction in an area is complete, the area will be reseeded with native, non-invasive plant species. If in one year, vegetation has not established, then re-seeding will occur the following year. Riparian areas will be planted with starts along Hayfork Creek. Seeds and starts will conform to the Federal Seed Act, the Federal Noxious Weed Act and applicable State and local seed and noxious weed laws.

Operation Phase

No mitigation is necessary.

3.13 Invasive Species

Although the word "noxious" means harmful, it has a legal meaning as well. In this context, noxious means a species of plants that have been designated "noxious" by law. Noxious weeds are non-native species that have the potential to spread rapidly, beyond typical dispersal patterns – usually through superior reproductive capacity, competitive advantage mechanisms, and lack of natural enemies. They are difficult to eradicate once established. In addition, they usually have the potential to cause economic loss and decline in land values.

The establishment and spread of noxious weeds often signals the decline of entire ecological systems caused by the detrimental impact their spread has on the biodiversity of plant communities. Noxious weeds reduce biodiversity, wildlife habitat value, and forage production. This analysis identifies what noxious weeds are a concern within the Project Vicinity, the current presence of noxious weeds, and how the Proposed Project may affect the spreading of noxious weeds. The USFS requires a risk assessment to be completed for every project held in the National Forest System (NFS) lands.

3.13.1 Affected Environment

A site survey was conducted to identify if noxious weeds occur within the Project Vicinity. Table 25 provides the target noxious weed species list used to guide these surveys. Both the USFS and Trinity County are directed through policy to identify and eradicate or control noxious weeds. The table indicates those noxious weeds which USFS and Trinity County have a policy to eradicate (noted by a **X**) versus control (as indicated by a (>):

FIGURE 25a
Example of a wall faced with aesthetic treatment constructed by FHWA along Highway 36 east of Mad River

FIGURE 25b
Another example of a soil nail wall with aesthetic treatment

FIGURE 25
EXAMPLE NAIL WALL
HYAMPOM ROAD
TRINITY COUNTY, CALIFORNIA

CH2MHILL

TABLE 25
Noxious Weeds for Both USFS and Trinity County

Scientific Name	Common Name	USFS Listed	Trinity County Listed (X)/ Prevent (>)
Aegilops cylindrica	Jointed goatgrass	**X**	>
Aegilops triuncialis	Barbed goatgrass	**X**	
Ailanthus altissima	Tree of heaven	**X**	**X**
Brassica nigra *	Black mustard	**X**	
Bromus madritensis ssp. Rubens	Red brome	**X**	
Cardaria sp.	Hoarycress	**X**	**X**
Carduus nutans	Musk thistle	**X**	
Centaurea calcitrapa	Purple starthistle	**X**	>
Centaurea iberica	Iberian starthistle		**X**
Centaurea diffusa	Diffuse knapweed	**X**	**X**
Centaurea maculosa	Spotted knapweed	**X**	**X**
Centaurea melitensis	Tocalote	**X**	
Centaurea solstitialis *	Yellow star thistle	**X**	**X**
Centaurea squarrosa	Squarrose knapweed	**X**	>
Chondrilla juncea	Skeletonweed		>
Cirsium arvense	Canada thistle	**X**	**X**
Cirsium vulgare *	Bull thistle	**X**	**X**
Conium maculatum	Poison hemlock	**X**	
Cynara cardunculus	Artichoke thistle		>
Cytisus scoparius	Scotch broom	**X**	**X**
Elytrigia repens [Agropyron repens]	Quackgrass	**X**	
Euphorbia spp.	Spurge species		>
Gypsophila paniculata	Perennial baby's breath		>
Halogeton glomeratus	Halogeton		>
Holcus lanatus	Velvet grass	**X**	
Hypericum perforatum *	Klamathweed	**X**	
Hypochaeris radicata	Rough cat's ear	**X**	
Isatis tinctoria	Dyer's woad	**X**	>
Lepidium latifolium	Perennial pepperweed	**X**	>
Leucanthemum vulgare *	Ox-eye daisy	**X**	
Linara genistifolia	Dalmatian toadflax		**X**
Lythrum salicaria	Loosestrife	**X**	>
Onopordum acanthium	Scotch thistle	**X**	>
Rubus discolor	Himalayan blackberry		**X**
Solanum spp.	Horsenettle species		>
Senecio jacobaea	Tansy ragwort	**X**	>
Sorghum halapense	Johnsongrass		>
Taeniatherum caput-medusae *	Medusa head	**X**	

TABLE 25
Noxious Weeds for Both USFS and Trinity County

Scientific Name	Common Name	USFS Listed	Trinity County Listed (X)/ Prevent (>)
Tribulus terrestris	Puncturevine	**X**	**X**
Ulex europaeus	Gorse	**X**	>

Notes:

* Species not tracked – either ubiquitous or not of concern to the USFS.

Sources:

California Exotic Pest Plants Council (CALEPPC). 1999. The CALEPPC List: Exotic Pest Plants of Greatest Ecological Concern in California. October.

Western Shasta County Resource Conservation District Website. 2003. http://www. Westernshastarcd .org/WeedGuide.htm.

Personal Communication with Susan Irwin. 2003. Botanist, USFS Shasta Trinity National Forest.

Memo from Mark T. Lockhart, Agricultural Commission for Trinity County, Sept 2003.

Populations of the goatgrasses, velvet grass, and dyer's woad noxious weeds were observed to be present within the Project Vicinity during a site survey conducted in May, 2003. These noxious weeds were primarily found directly adjacent to the roadway and near small creeks. The goatgrass was found in Segment 4, dyer's woad was only found in Segment 2, and the velvet grass was found in Segments 2, 4, and 5. Within Segment 3, the following noxious plants were observed: yellow star thistle, thistle, Klamathweed, groundsel, and medusahead (May 2004c). Trinity County and the USFS are concerned about managing all species of noxious weeds. Roads, highways, and related construction projects are some of the principal dispersal vectors for exotic pest plants. The introduction and spread of exotic pest plants adversely affect natural plant communities by displacing native plant species that provide shelter and forage for wildlife species.

3.13.2 Environmental Consequences

This subsection will review how the Proposed Project may cause the spreading of noxious weed species that are present or transported in from outside sources. The following activities are considered capable of spreading noxious weeds: machinery and equipment, cars, trucks and common carriers, seed, seed screenings, livestock feed, hay and straw, manure, soil, sod, nursery stock, livestock, and noxious weeds sold or distributed for any purpose.

3.13.2.1 Alternative 1- No Action

This alternative will not result in increasing the spread of the invasive plant species identified above beyond typical dispersal patterns. Long-distance travelers or trucks carrying farm animals or other materials through the Project Vicinity may be carriers of noxious and invasive plant species seedlings. Even routine maintenance operations can result in transporting and creating ideal conditions for germinating noxious weeds.

3.13.2.2 Alternatives 2- Reconstruction of Existing Alignment

Construction Phase

The anticipated 4- to 6-year construction phase will involve removing vegetation, transporting large equipment, and temporarily stockpiling considerable amounts of cut and fill materials for later use in road construction. Removing trees increases light to newly exposed soil areas, which promotes seedling growth. Large equipment may be carriers of invasive species and the movement and disturbance of soil may assist in spreading or germinating noxious weeds. Work within the riparian areas may expose fertile and moist soil, thereby creating an ideal environment for seed germination. While most of the fill materials will come from onsite cut slopes, roadbase materials and mulch may come from outside sources that carry noxious weed seeds. Construction involves exposing soil to air-transported seeds and watering to keep the dust down—both activities create ideal conditions for seed germination.

Overall, the construction phase represents several high risk factors including nine identified noxious weeds present in the Project Vicinity, relatively frequent disturbance activities associated with transporting equipment from outside the area, and clearing, grubbing, and importing fill. These project activities will result in a medium to high potential for the Proposed Project to increase the spread of noxious weeds. These risks may be reduced substantially by application of the proposed mitigation measures.

Operation Phase

Long-distance travelers or trucks carrying farm animals or other materials through the Project Vicinity may be carriers of noxious and invasive plant species seedlings. Even routine maintenance operations can result in transporting and creating ideal conditions for germinating noxious weeds. However, the operating of the finished Proposed Project would not result in an increased risk of spread of noxious weeds over the existing operation and maintenance of the road.

3.13.3 Cumulative Impacts

3.13.3.1 Alternative 1- No Action

No direct cumulative impacts would occur with Alternative 1.

3.13.3.2 Alternative 2 – Reconstruction of Existing Alignment

Cumulatively, noxious weeds have been introduced through homesteading, creation of Hyampom Road, logging, and frequent travel from outside the area. However, with awareness and routine management, noxious weeds do not appear to be a problem along Hyampom Road. With implementation of BMPs during construction of the Proposed Project and other projects on or near Hyampom Road (fuel reduction and Hayfork bridge replacement projects), the cumulative impact of noxious weed spreading will be minimal.

3.13.4 Mitigation Measures

3.13.4.1 Alternatives 2- Reconstruction of Existing Alignment

Construction Phase

Prevention/ Equipment washing: Construction equipment will be thoroughly washed before entering Trinity County, or if already residing in Trinity County, thoroughly washed before being transported onsite to reduce the risk of weed introduction into the Project Vicinity.

Seed Requirements: In accordance with FHWA's "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects" (USDOT 2004) Section 713.04, all seed must conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws.

Prevention/Weed-free material: The Proposed Project will require certified weed-free mulch and seed mixes.

Operation Phase

Trinity County (the Department of Transportation, including Road Maintenance Crews and contractors hired by the County) is prohibited by County ordinance from using herbicides or other pesticides. Because Trinity County will assume long-term maintenance responsibilities for the roadway, they will continue to implement manual removal during spring roadway maintenance roadwork. Trinity County may engage in bio-agents (such as insects) for particular species of concern as determined necessary.

3.14 Construction

This section describes the short-term construction effects that could occur from Proposed Project construction activities. The purpose of this section is to provide a summary of the construction activities associated with Alternative 2 - Reconstruction of Existing Alignment.

The Proposed Project construction schedule, including sequencing, will be determined based on availability of funds, crews, and access. Construction for all 4 segments is expected to occur over a period of up to 4 to 6 years. More than one segment may be constructed concurrently. Occasional work may be necessary at night and on Saturdays, but no work would occur on Sundays or holidays.

Due to the steepness of the terrain and the narrowness of the existing road, it is anticipated that short-term road closures (up to 4 hours at a time daily) and travel delays will occur during construction of Segments 2, 3, 4, and 5.

Equipment anticipated to be used during construction of the Proposed Project include bulldozers, loaders, cranes, graders, water trucks, backhoes, trucks, rollers, onsite asphalt and/or concrete batch plants, concrete delivery trucks, asphalt-paving machines, rollers, aggregate crushing and screening machinery, compactors, water trucks, truck-mounted drills and pile drivers, other service vehicles and hand tools. Explosives would also be used on the Proposed Project, as warranted. Staging areas may include a project trailer office, stockpile locations, and parking. The total workforce for Segments 2, 3, 4, and 5 is estimated to be 11 jobs for 6 years and will be dependent on the duration and phasing of the projects.

All workers will be responsible for their own accommodations. The construction staging areas will be responsible for sanitary services such as port-a-potty, trash containers, and enclosing any fuels, solvents, explosives, cement, and asphalt materials. The staging areas will contain equipment for fuel, water, and necessary maintenance needs.

A description of the methods of construction of each alternative is presented below.

3.14.1 Methods of Construction

3.14.1.1 Alternative 1- No Action

The No Action Alternative would include ongoing maintenance and potential road closures; however, these effects would be minimal and temporary in nature. Maintenance and related construction activities would include collecting debris and rocks from the roadway, reinforcing the roadway, undercutting and repairing hillside erosion, restriping, and asphalt patching.

Larger projects could be necessary in the event of road failures such as landslides or slipouts. Routine maintenance and small repairs could be accomplished with short-term road closures and pilot cars. However, complete road closures of long duration (weeks or months) could occur in the event of a major failure of the road, or loss of roadway width resulting in less than one lane of safe passage.

3.14.1.2 Alternative 2- Reconstruction of Existing Alignment

Overview of Construction Methods

Construction of the Proposed Project will require 4 to 6 years, subject to the availability of funding. The construction season is expected to occur from May 1 to October 31, with the exception of contractor mobilization, clearing, and surveying, which may occur earlier. Earth moving construction activities will not take place during the winter months. In early November, the Proposed Project site will be winterized with temporary or permanent erosion control at the end of the construction season and most equipment will be removed from the site. However, clearing of trees and some work on structures such as pile driving or installing soil nails for retaining walls may continue into winter, after consultation with NOAA Fisheries and weather permitting. Earth moving would resume in upland areas in the spring after the threat of major storms has passed (May 1). In general, construction will take place between the hours of 7 a.m. and 7 p.m., with occasional night work. Construction components vary by roadway segments; however, each segment will generally include the following elements: 1) utility repositioning, 2) clearing and grubbing, 3) excavation and embankment or retaining wall construction and placement of rock slope protection; 4) bridge rehabilitation/replacement, 5) sub-grade and drainage construction, 6) placing aggregate base and paving and 7) finish work.

The contractor must meet FHWA, Trinity County and USFS roadway plans and specifications which include mitigation measures, safety requirements, and regulatory permit requirements. Inspectors will be onsite to oversee that standards are met. In order to understand the construction activities, a brief description of each major construction phase follows:

Step 1 - Utility Repositioning

Utility repositioning occurs prior to beginning roadway construction. Utilities are repositioned outside the Proposed Project limits, if possible. Utilities in this rural environment generally consist of overhead electric and telecommunications. Public utilities (Trinity Public Utilities District and Verizon Communications) would be responsible for relocating their own facilities.

Step 2 – Clearing and Grubbing

Within Step 2, the construction team is mobilizing to bring in necessary workers and equipment, and submit material orders to arrive as needed. Material staging locations may be in Hayfork on private property or a series of small turnouts along Hyampom Road. While the construction teams are mobilizing, clearing can be accomplished. Clearing operations will likely occur during the winter between November and February. Clearing the Project Vicinity involves removing trees and other vegetation approximately 4 m (12 ft.) beyond the final cut and safety recovery zone or embankment to provide maneuvering room for construction equipment and to ensure the area is safe from falling trees and that visibility is clear. No trees will be removed outside the construction limits. For some portions of the Proposed Project, tree clearing will include a timber sale. Some trees, snags, and stumps may be saved for habitat restoration. The contractor may conduct water drafting from Hayfork Creek to use in water trucks for the control of fugitive dust during timber clearing and harvesting operations.

After the clearing is completed, a grubbing team removes tree stumps, grasses, boulders, and top soil. Grubbing activities will not begin until after May 1. The top soil is saved for the project finishing and stored in a staging area until the sub-grade is in place. Grubbing activities prepare the site for heavier earth moving in Step 3. Staging areas will be set up in several locations along Hyampom Road to be used for parking, materials and equipment storage and an office trailer for construction management activities.

Step 3 - Excavation and Embankment or Retaining Wall Construction

Steps 3 and 4 are closely related, and for this Proposed Project, are likely to overlap. Excavation is the removal of slope material through digging, scraping, and blasting. Digging is done with a backhoe and excavators and scraping is the removal of material through the use of large tractors and wheel loaders. Blasting methods require a calculated plan based on geotechnical studies of the rock, the density, the amount of material, and other variables. A series of holes are drilled along a plane to form a fracture line. The explosives are placed in the holes, and are set off with an air–pressure device in sequence to direct the stress along the series of holes for a limited depth. The result resembles a series of cracks throughout the face of the rock. Then the material is removed before the next shelf is blasted. The process is controlled, but because some small material may roll on to the roadway below, the road is closed until the material can be cleaned up.

Depending on the quality of the excavated material, some quantities may be used to build up the embankments on the down slope or raise the road elevation, where needed. Extensive retaining walls will be constructed in all four segments of roadway. Retaining walls and rock slope protection will be used to stabilize slopes or prevent erosion or to support the road where steep slopes will not permit typical fill construction. Retaining walls will either be welded wire walls (cages built with heavy gage wire and filled with soil), can

walls (steel pipes driven vertically and filled with soil), sheet pile walls (driven sheet metal) or cast-in-drilled hole piles with timber or steel lagging.

If quality rock is available in the excavation, an onsite rock crusher can turn the material in to quality aggregate for use underneath the pavement or within the pavement itself. While it is desirable to build up areas directly, it is likely that there will be material that is needed later in the job and therefore temporary stockpiling of material will be necessary. Any imported aggregate materials will be from commercial sources operating in compliance with Surface Mining and Reclamation Act (SMARA), Public Resource Code Section 2710 et seq..

In addition, soil nail walls will be constructed in upslope steep terrain areas in selected locations along Segments 4 and 5. Construction methods for soil nail walls involve excavating vertical benches, then drilling holes into the soil or rock face. The holes are filled with grout (without the use of forms) and then steel bars or "nails" are inserted. When the grout sets, the nails are fitted with steel bearing plates and vertical and horizontal drains are installed. Reinforcing steel is added to the face of the wall. Finally, a welded wire mesh is applied to the face and shotcrete, or concrete, is applied over the nail wall. While still wet, the concrete is sculpted and colored to aesthetically match the natural stone and boulders in the surrounding environment. The objective is to blend the soil nail wall with the surrounding cut slopes and rock outcrops. Examples of soil nail walls can be found in Figures 25a and 25b.

Step 4 – Bridge Rehabilitation/Replacement

During this phase, forms, bridge foundation, and drainage pipes will be laid. This step may occur prior to, or concurrent with the next step, sub-grade and drainage construction. The Nine-Mile Bridge over Hayfork Creek will be widened which will require addition of a new steel girder and widening of the existing pier walls and foundations. To extend the bridge piers to support the new girder, forms will be built in the excavation of the creek bed and concrete will be poured into the forms to extend the pier footing. The pier extension will be constructed on top of the new footing extension. The footing excavation will be isolated from the live stream by a barrier (sand bags, water filled tubes, etc.) Dewatering or complete diversion of Hayfork Creek will not be necessary.

Single span bridges will replace the existing Little Creek Bridge and the culverts at James and Jud Creeks. These bridges may be cast-in-place or pre-cast concrete, with concrete or steel pile abutments. Piers will not be necessary for the new bridges and the abutments will be located outside the Ordinary High Water Mark of the creeks. Cast-in-place abutments will be made by constructing forms and pouring concrete in excavated areas. If pre-cast structural systems are selected, the members would be delivered to the site by truck and placed with cranes. Haul routes to be used include SR 3.

Step 5 – Sub-grade and Drainage Construction

Sub-grade is the base soil composite that is compacted to support the aggregate and pavement. Layers are well-compacted and tested for stability. As the sub-grade is laid and made passable for passenger vehicles, the remaining roadway is obliterated by ripping up the old asphalt and re-contouring the area for more natural topography. Culverts (sized for the 100-year storm) are placed during the construction of the sub-grade, and the necessary drainage ways leading to and along the roadway (including roadside ditches) are

developed. Depending on the composition of the material, dust control measures are applied, such as watering to keep dust down. Permanent erosion control will also include inlet and outlet protection at culverts, rock slope protection, drainage inlet protection, vegetated drainage ditches and swales. This phase involves heavy equipment such as backhoes, bulldozers, scrapers, dump trucks, cranes, rollers and paving machines.

Some of the aggregate and other materials needed for fill may be derived from road cuts and excavation within the Action Area. Producing these materials on-site with a crushing operation and a portable asphalt plant can reduce traffic congestion and disruption to the local traffic and noise due to hauling. Additional material will be acquired from commercial sources. If onsite aggregate can be used, then an aggregate crushing and screening batch plant will be developed.

Step 6 - Placing Aggregate Base and Paving

Aggregate base consists of approximately a 150 to 300 mm (6 to 12 in.) thick layer of crushed aggregate. It is placed as a base to support a 75 to 100 mm (3 to 4 in.) thick layer of asphalt concrete pavement usually placed in two lifts. Several trucks are used to provide a continuous flow of material to the lay-down operation and can cause some congestion in the Project Vicinity. Once the aggregate is placed, the final layer of asphalt concrete will be laid and rolled on the roads and ditches, and curbs will be formed.

During Steps 3, 4, and 5, the contractor may conduct water drafting from Hayfork Creek to use in water trucks for the control of fugitive dust during construction.

Step 7 - Finish Work

Finish work includes setting guard rails, permanent erosion control measures (revegetation, seeding and mulching and other permanent ground covers on disturbed areas), signing, striping, and removing all temporary stockpiles, grading and vegetating permanent spoils piles to blend with terrain, and cleaning up all staging areas.

3.14.2 Construction Mitigation

Construction mitigation measures include BMPs and, more importantly, avoidance measures. Construction mitigation measures for all environmental resources are presented in Sections 3.2 to 3.14 and 4.2.

All construction will be conducted in conformance with FHWA's *Standard Specification for Construction of Roads and Bridges on Federal Highway Projects*, current edition or the State of California, Department of Transportation's *Standard Specifications*. A Construction Mitigation Plan will be developed within the first month of receiving notice to proceed with construction. The plan will be developed in cooperation with FHWA, Trinity County, and the STNF USFS staff, the County Sheriff, fire departments, and ambulance service. A Construction Mitigation Plan is composed of key elements that address specific situational needs and necessary accommodations during construction. The Construction Mitigation Plan will include the following key elements:

- Waste and Storm Water Management
- Dust Reduction
- Construction Noise
- Invasive Weed Management

- Traffic and Circulation
- Public Information
- Emergency Preparedness

These key elements are described below, with the understanding that further detail will be developed and agreed upon by FHWA, USFS, and Trinity County prior to construction.

3.14.2.1 Waste and Stormwater Management

The contractor will be consistent with Chapter 6.95 of the California Health and Safety Code in developing a Hazardous Materials Business Plan for storing over 225 kilograms (500 pounds) of materials for the Temporary Concrete and Asphalt Batch Plants, as implemented by the Certified Unified Program Agency, Trinity County. Finally, the plan will include a description of health and safety requirements in compliance with OSHA for handling potentially contaminated materials. Also, a contingency will be prepared to address the management of unexpectantly encountered contaminated soil or ground water.

A NPDES Construction Permit will be obtained prior to construction activities to minimize effects from stormwater pollution. As part of the NPDES permit, a SWPPP will be prepared. This plan will be prepared per RWQCB standards and will define the use of BMPs that will help minimize temporary effects to the water resources and channel environment. It will also include an Emergency Spill Containment Plan. See Section 3.8, Water Resources, for more information on Water Quality BMPs.

Emergency response actions/protocol will be identified and implemented by the construction contractor, Trinity County transportation officials, and/or California Highway Patrol emergency response hazardous materials (HAZMAT) contractors to address accidental spills. These protocols will include appropriate cleanup, offsite transport, and disposal of solid or hazardous waste that might be generated as a result of an accident.

3.14.2.2 Dust Reduction

To reduce airborne dust and debris from construction activities, the following fugitive dust control measures discussed in the Air Quality section will be included in the Construction Dust Control Plan:

- Restrict speeds of vehicles in and around the construction activities.
- Frequently water disturbed, unpaved surfaces or use other forms of dust suppressants.
- Control dust from material storage piles by spraying with water or dust suppressants.
- Minimize the disturbed area and the time between initially disturbing the soil and revegetating or other surface stabilization.
- Water active grading as appropriate during dry season.
- Cover all trucks hauling dirt, sand, silt, or other loose materials or maintain at least 15 cm (6 in.) of freeboard.
- Minimize the time between initially disturbing the soil and revegetating or providing other surface stabilization.

- Control dust from rock crushers and concrete batch plants by enclosures, covers, or other measures included in the NCUAQMD air quality permit.

In addition, the following Vehicular Emissions Controls will be implemented to reduce dust outside the Project Vicinity:

- Maintain equipment and vehicle engines in good condition and in proper tune per manufacturer's specifications.

In addition, covered waste collection bins will be provided at each staging area.

3.14.2.3 Construction Noise

Construction Noise Element may include the following provisions in addition to the mitigation measures identified in the Noise section:

- Construction is not permitted within 0.40 km (0.25 mi.) of residential receptors at nighttime, on Sundays or federal or state holidays.
- Construction is not permitted from ½ hour before sunset to ½ hour after sunrise within 0.80 km (0.50 mi.) of an active NSO nest.
- The contractor must comply with all applicable local ordinances, including provisions that equipment must be adequately maintained and muffled.
- The contractor must notify the project engineer and local residents of percussive activities that are expected, such as pile driving and rock drills. No percussive activities will be allowed at night.

3.14.2.4 Invasive Weed Management

This element of the Construction Mitigation Plan will outline the preventive measures associated with minimizing the outbreak of invasive weeds within and adjacent to the Propose Project. It will include cleaning of earth-moving construction equipment prior to arrival on site and requiring any revegetation or erosion control materials brought in from offsite to be certified weed-free. The construction team will be responsible for disturbing the least volume of soil possible and hydroseed all disturbed areas with best-suited low-growing plant species. All activities will be coordinated with the STNF USFS. See Section 3.13.4 for more detailed information.

3.14.2.5 Traffic and Circulation

This element addresses extended road closures, traffic and circulation to accommodate residential and business access, and public service vehicles, such as the postal service, school bus service, emergency vehicles, etc. Also addressed is a plan for signage to be developed to provide road closure schedules and preconstruction announcements.

Daily full road closures, up to 4 hours at a time, will be likely for all segments, but most particularly for Segments 4 and 5 due to the steep terrain, major slope excavation, and retaining wall construction. Due to the lack of alternate routes that can accommodate all vehicle types, no detour roads will be developed as part of the Proposed Project. The traffic and circulation element will explain how pedestrian, bicycle, vehicular residential access,

and public service vehicles, such as the postal service, school bus service, emergency vehicles, etc. will be accommodated.

Signage will be developed to provide general closure times and locations. Temporary construction signs will be placed in the Project Vicinity at least 0.8 km (0.5 mi.) before the beginning of construction zones. Signs will also be placed at the ends of Hyampom Road (i.e. in Hayfork and Hyampom) as well as at major intersections such as Butter Creek and St. John's Roads. Also, refer to Public Information section, below. The signs will update travelers regarding current and upcoming construction activities. Signage instructions will provide information about upcoming work phases in advance of construction. Signs will clearly instruct travelers and delivery services.

3.14.2.6 Public Information

A public information element will be developed and implemented by a public information manager with responsibility for maintaining communication with affected residents and the local government and public services. The public information manager will maintain regular communication with the Project Engineer and the Construction Contractor, and will be well versed on all aspects of the construction schedule. A public information element should address both information distribution to local and tourist communities including a web site, web link connections from tourist web sites, hotlines, roadside signs, construction schedule fact sheets and particular outreach to businesses, delivery services, local residences, and emergency service providers in offering advanced notice of upcoming construction activities and effects of those activities. The public information element will include a description of communication methods, lists of ambulance, fire, sheriff, school delivery services, post office and public utilities districts' contacts, newspapers, and frequency of coordination with concerned members of the community and businesses.

Additionally, the public information manager will be responsible for providing up-to-date road closure information to the general public, especially Hyampom residents and business owners and delivery service providers. Road closure information, including closure times and locations, will be provided by signs posted at the work site, at each end of Hyampom Road and at major intersections. The schedule will also be posted in various locations in Hyampom and Hayfork, published in the local newspaper, posted on the internet, and/or mailed to PO Boxes in Hyampom and Hayfork. The information would also be available by calling the public information manager or the TCDOT office in Weaverville.

3.14.2.7 Emergency Preparedness

The Project Engineer and Construction Contractor will coordinate closely with emergency service providers before and during construction. To be properly prepared for a wildfire, medical emergency, flood, or other events that could require immediate access on Hyampom Road, an Emergency Preparedness Element will be developed between the FHWA, contractor, TCDOT, USFS, Hayfork Fire District, Hyampom Community Services District, Trinity County Sheriff's Office and Trinity Ambulance Service. This element will establish lines of communication so that the construction crew receives notification of an emergency need to open the road prior to the arrival of emergency vehicles at the site. Procedures will also be established to keep emergency service providers advised of the location of construction crews, the activities going on at the time and the estimated time to

clear the road for each activity. Communication will also include current information on the status and passibility of alternate routes. The emergency service providers will use this information to determine the fastest way to reach the emergency site under the present circumstances.

The Emergency Preparedness element will at minimum require that the contractor have a serviceable telephone, radiotelephone or radio system connecting each construction operation with the contractor's headquarters. The communication system will provide prompt and reliable communications between the contractor's headquarters and USFS via commercial or USFS telephone. The communications system will be operable during contractor's operation in the fire precautionary period.

The Emergency Preparedness element will also include a Fire Plan that will address preventative measures concerning weather conditions, storing and maintenance of equipment, management of burning and blasting, containment of flammable materials and reporting fires. The Fire Plan will require the designation of a wildfire patrol person that will be responsible for fire prevention and suppression activities and to establish an attack procedure for fires within the construction area and an emergency response plan. The contractor will be required to coordinate the Emergency Preparedness Element through the STNF USFS and ensure that all construction workers are trained on the Emergency Preparedness element.